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COMMENTS ON MEDICAL EDUCATION.

By HUGH WARD,
Sydney.

SIR HOWARD FLOREY addressed the Australian medical schools in 1950 and he ended his address with these words: "I sometimes wonder whether Australia now possesses the *elan* and energy to make use of her abundant natural and human resources." That was an outspoken comment, but being an Australian himself, Sir Howard no doubt felt that he could speak more frankly than could an Englishman or an American.

Like other visitors to this country, Sir Howard Florey was impressed with the general standard of medical practice, with the professional efficiency of the hospitals, and with the adaptation of mass-production techniques to teaching which have been forced on the universities. He noted that the best research was being done in research institutes and not in the universities, which were "deplorably short of money, overcrowded, with inadequate staffs struggling to cope with the vast burden of teaching". He drew attention to what he called "diplomatism", which he

defined as a passionate belief in the value of higher qualifications—even multiple higher qualifications in the same branch of medicine—as the high road to hospital appointments and advancement in the profession. While all would agree that a diploma or higher qualification is better than none, the average graduate carries over from his undergraduate days the methods of passive learning out of textbooks, he reads little of the current literature, and he is never exposed to the experimental method.

Despite all these criticisms, which are just, the ultimate product is a good doctor, if not as good as he might have been had he been trained to a more critical and thoughtful approach to his problems. And in these days with new theories, new techniques, new remedies crowding in on him, the doctor needs to be critical. One is inclined to think that, for many, real education begins when examinations are over and the questions posed by patients have to be answered and not the questions set by examiners. Up to this point the individual's whole life has been conditioned by examinations—at school, at the university, and in his post-graduate education. It is only the exceptional student who becomes wrapped up in this fascinating subject of medicine. The ordinary student—the author was one of these in his time—views the medical course as an obstacle race and keeps his attention firmly fixed on the obstacles.

It is unfair to blame the student for his lack of interest in the subject, because he has to learn so many facts to satisfy his examiners. Facts of course are necessary, but it is generally agreed that principles and understanding are often submerged in this welter of facts. It is sad that the student will have forgotten three-quarters of the facts in a year's time, but, if he has understood the reasons behind any of the facts, those principles will stand by him. Memory fades but understanding lingers.

But the time comes when examinations are over. What can happen then? If the doctor is content to answer by rule of thumb the questions that his patients pose, his education is over. But if he is not content to do that and thinks about them and reads about the problem not because he has to, but because he wants to, this is active learning: his real education has begun and he is on his way to being a really good doctor. He is more likely to take the latter course if for a year or so he has undertaken some investigation. During such an interlude he has been exposed to the difficulties and exacting discipline of the experimental method and, perhaps just as important, he has for the first time in his education had time to think and to read for interest, not for examination.

But what did Sir Howard Florey mean by his crack about our lack of *elan* and energy in developing our own human resources? Undoubtedly he was referring in part to the widespread impression that many of our most talented graduates leave Australia and do not return because they feel that the opportunities for an academic or research career are greater abroad than they are in this country. Actually what frequently happens is that Australian graduates who go to England are tempted there by an offer of a position because medical schools the world over are on the lookout for talent, and competition for good men is keen. How often does one hear the question asked in this country: "Do you know of a good man for this or that position?" However, it is true that appointments abroad are more attractive in that salaries are higher as a rule and teaching tasks are much lighter, leaving more free time for research.

But Sir Howard Florey also had in mind the incontrovertible fact that Australia, with a few notable exceptions, is not making contributions to knowledge commensurate with our human and natural resources. He drew comparisons with Sweden, a country which is not rich and with fewer people than Australia. Yet Sweden and even still smaller Denmark are in the van of medical progress. It is a hard thing to say, but Australians, with those few notable exceptions, seem content to be imitators.

Why are we, a proud people, content to be imitators? There are many factors which determine this attitude, but, if we go down to bedrock, we find the universities setting or not setting the standard. An outstanding example of setting a standard is the rise of Boston to become a world-famous medical centre. This was largely the work of one man, the dean of the Harvard Medical School. Helped by adequate finance, he organized the school into a great institution, and medical research activities in Boston now stretch far beyond the Harvard Medical School and are woven into the medical civilization of the town. In a country like Sweden, comparable in population and resources with Australia, the Universities of Uppsala, Oslo, and Lund have set the standard.

If one accepts this thesis, the question now becomes: "Why have the Australian universities not set the standard?" The truth is that the community, the governments and even sometimes the academics regard the universities principally as professional training institutions. And that is what they mainly are, differing from technical colleges in the possession of a charter. It is then not surprising that the staffs of hospitals are recruited from men—often men of great talent—who possess higher medical qualifications or diplomas but have never been exposed to a research atmosphere: one might say men who have never been extended to exert those talents.

We could say that Australians pay lip service to research but do not really believe in it. Yet that would not be

fair, because we do believe in research, as witness the National Health and Medical Research Fund with an income of over £100,000 a year; as witness the John Curtin Research Institute of the Australian National University with an adequate income; as witness the various research institutes in the capital cities, the most famous of which is the Walter and Eliza Hall Institute for Medical Research attached to the Royal Melbourne Hospital and associated with the names of two great Australian medical scientists—Dr. Charles Kellaway and Sir Macfarlane Burnet.

There is, however, a curious and significant feature about these research activities in Australia—research is looked upon as something apart, carried on by rather exotic individuals in ivory towers. One senses this attitude best in hospitals with an attached research institute. The staff of the hospital are proud of the institute when they think about it at all, if a little amazed when they learn that their hospital is known abroad as the place where Dr. X (a member of the institute) works. But the institute exerts little or no influence in the hospital, it is just a trimming. Yet unless and until the institute becomes an integral part of the hospital, it will not raise the standard of the hospital activities, and the hospital, apart from its research institute, will make no contribution to medicine; it will merely make use of the results obtained by others. In other words, the staff, with few exceptions, will be imitators and under this system they can be none other.

It will be said: "These hospitals are pretty good. Are we all expected to become research workers? We could not possibly afford the time to undertake research and look after our patients." Put in that way, our sympathy must go out to the staff of the hospital. But is that an accurate appreciation of the situation? If it is, then how can the research activities in the hospitals of a centre like Boston be explained? For there are patients in those hospitals too. The difference lies fundamentally in the atmosphere of the hospital. By no means all the staff of these active hospitals are undertaking investigation, but all the staff have been exposed to the discipline of research at one time or another; they believe in its value and importance, and the older men encourage the younger men to spend at least a year or two working on some problem. That means, of course, many more full-time positions for young graduates, and that is what we find in many American and British hospitals today.

It should be emphasized again that the majority of these young graduates return to clinical work, but they have been exposed and they carry with them sympathy for and interest in investigational work. As a result, the atmosphere of investigation is integrated into the clinical activity of the hospital instead of being something apart from clinical work, which is the situation we find in this country. It is always difficult to describe an atmosphere, but the impression one gets in the hospitals of a city like Boston (which the author of this article knows best, although there are many others both in England and America) is that the hospitals are alive and the students and residents are growing up in this invigorating and critical air. Of course there are drawbacks—the training period is longer, it is more expensive, and there are too many articles written which clutter up the already enormous volume of medical literature.

One can already hear the objection: "Yes, but does not the clinical training suffer from all this emphasis on investigation? A doctor's first priority is to look after his patients." No doubt investigation can be overdone, and it is essential that the proper balance be kept. But this is true: clinical work has such a fascination that it can always be trusted to look after itself, whereas investigation has to be encouraged and is unlikely to arise spontaneously except in rare individuals.

We hear a great deal today about post-graduate medical education. After the graduates have completed their ordinary term as hospital residents they fall into two main groups—those who are going into general practice and those who are going to be specialists. The first group receive no special post-graduate training for their work as general practitioners; the second group receive from two

to five years of special training. Presumably the assumption is that it is easier to be a good general practitioner than it is to be a good specialist. Many believe that it is harder, but no one has yet solved the problem of the post-graduate training of the general practitioner, although some passes have been made at it. It is the specialist group who will man the large metropolitan hospitals and, if the hospital is a teaching hospital, it is they who will take a large part in setting the standard for the students and for the profession. Although the universities have some say in the appointments in the teaching hospitals, naturally it is the boards of the hospitals who mainly call the tune. With a few exceptions, the practice has grown up in this country of making such hospital appointments on the examination record of the candidates, which of course will include the number of higher qualifications or diplomas the candidates hold. The candidates know that, as a rule, any serious investigational work they may have done will not weigh appreciably in their favour, and therefore they do not "waste their time" in any such endeavour. This method has its advantages—it is objective and fair, thus discouraging nepotism; it usually picks out the most intelligent candidates; and it does ensure that the candidates have had a systematic training in their specialism. But it has the disadvantage that the successful candidate will be most unlikely to make any contribution to medicine himself, nor as he grows older will he encourage younger men to take the less direct path to advancement in the profession.

One is confident of course that patients admitted to these hospitals will be treated with skill, care and kindness. No one would deny that our main hospitals will have the mark of professional excellence, but they will never be great hospitals. To reach that standard professional excellence is not enough.

Returning now to post-graduate education, if the goal is solely to prepare candidates to pass examinations for the various higher qualifications, then the post-graduate authorities will and do organize courses of lectures to this end. More lectures, more text-books, adding up to more passive learning. The move by the colleges to lay a firmer foundation by including examinations in anatomy, physiology, biochemistry and pathology merely means that candidates must try to know at this stage of their career as much about these subjects as they did as undergraduates. The candidates are not interested, and such courses degenerate into exercises in memory to defeat the examiners. To be fair, these candidates do know a good deal more of the clinical aspects of their subjects, perhaps because active learning in the wards of the hospitals has begun to educate them. They would no doubt learn a good deal more if some elementary statistical training had weaned them from the trap of "I remember a case".

If, however, the goal is to make any particular city a dynamic medical centre to which doctors will flock to acquire knowledge as well as higher medical qualifications, then the above methods will not succeed. If the implications of Sir Howard Florey's challenge which have been developed in these meanderings are anywhere near the mark, then the approach to the problem must be more indirect—and much more difficult. Dr. V. M. Coppleson, Honorary Director of the Post-Graduate Medical Studies in the University of Sydney, in his recent report on "Trends in Modern Medical Education", is also concerned with our over-emphasis on examinations and our neglect of research, but, as Dr. Coppleson realizes, the post-graduate educational authorities can certainly not cope with this problem alone, even if their financial resources were unlimited, because money alone will not build up an academic tradition. This tradition must be built into the universities, which are its natural home, and into the teaching hospitals. The words "academic tradition" have been used, but "scholarship" or "search for the truth which lies beyond the margin of established knowledge" might have been used equally as well. All these words or phrases try to give expression to the intangible, on which, however, rests the whole structure of modern medicine, with its unprecedented advances in the understanding and management of disease.

Are we so lowly that we cannot add something to the structure? All honour to Dr. Norman Gregg for his classical observation on the aetiology of some congenital abnormalities, and to Sir Macfarlane Burnet and Dr. M. R. Lemberg for their fundamental studies, which should be multiplied if we are "to make use of our abundant natural and human resources".

A significant fact is that none of these contributions emanated from the universities, and it would be fair to say that, if Fellowship of the Royal Society is taken as the yardstick of scientific achievement, those who work in research institutions (like the laboratories of the Commonwealth Scientific and Industrial Research Organization or medical research institutes) are far more likely to gain this honour than those who work in the State universities. Yet it is customary in most countries to look on the universities as the home of the academic tradition. What is wrong then in the State universities? The staff? It is true that the field of applicants for university appointments is not as strong as it should be because salaries and conditions are better outside than inside the universities. Yet university departments contain many gifted men, because selection committees give preference to men with good research records. Facilities? Here we come to the take-off from which we must try to meet Sir Howard Florey's challenge. The recipe for cultivating the academic tradition is simple: pick good young men and back them with everything you have. That recipe was successful at Harvard, where "everything you have" is plenty, but what can be done in, say, the University of Sydney, which is notoriously poverty-stricken, overloaded with students and understaffed? Difficult of course, but it is more fun to overcome difficulties than to have everything laid on. The one essential thing to change is the atmosphere. Universities in Australia are regarded by the community, by the governments, by the professions and even by some in the universities themselves as professional training schools and little else. In such an atmosphere, where teaching has priority, professors tend to become glorified schoolmasters, deans to become glorified clerks, and scholarship is forgotten. But if scholarship has priority, there need be no fear that teaching will be overlooked; indeed in the writer's experience it is undertaken more enthusiastically and is reviewed more critically. Moreover, in such an atmosphere lack of time or even lack of facilities is never accepted as an alibi for lack of scholarship, although it is obviously a handicap.

The same change of atmosphere is needed in the teaching hospitals, but with this difference—hospitals are built, equipped, staffed and financed primarily for the care of the sick, and patients must have first priority. Teaching hospitals have, however, other functions owing to their association with the university—those of teaching and the advancement of knowledge. Students, both undergraduate and graduate, should grow up in an environment where investigation is in the wards as well as the attached research institute. The simplest way to encourage such work is for hospital boards, in selecting men to join the staff of the hospital, to give preference to those who have undertaken some serious investigational work. More full-time positions in hospitals must be created to make such activities possible for the younger men, and this is what we find in the teaching hospitals of other countries. Clearly some men will take to this kind of work more readily than others, but all will benefit by their contact with the margin of knowledge, by their emancipation from text-books, and by their inevitable realization that modern medicine really does rest on the fundamental sciences, which they memorized under protest earlier in their training.

Summing up these somewhat dogmatic arguments, it is suggested that the only sound way to meet Sir Howard Florey's no doubt consciously provocative statement is to acknowledge our shortcomings, to encourage the academic tradition both in the universities and in the teaching hospitals and to realize that higher professional qualifications alone will not raise our work to world standard.

Nothing has been said up to this point about money. If lack of money is invoked too often as a reason for inactivity, that does not mean it is unimportant. It is uncontested that Australia spends a good deal less money *per capita* on tertiary education than either the United Kingdom or Canada. Universities the world over have found in the last two or three decades that they can no longer run on charity. Even in the wealthy United States, with an enviable tradition of private endowment, the universities are using capital instead of income to remain solvent. All universities are turning to the government treasury for financial support. In the United Kingdom the Government (of both political complexions), although in sore financial straits, has been sympathetic to the universities, believing that in the long run it is a sound financial investment. Here in Australia the State universities have been in financial trouble for many years and at the moment there is little light on the horizon. We are drifting. With a population growing apace, there is no move apparent to finance the State universities adequately, nor any move to establish new full-scale universities to take the pressure off the main universities in the two most populous States. These universities are already overcrowded and, if a decision was taken immediately to establish a new full-scale university, it would be at least ten years before it was built and running, probably a good deal longer. It is true that the recently established Australian National University at Canberra is adequately financed. It is devoted entirely to research and research training. We can look forward to its making notable contributions to knowledge, and in the long run to providing some scholars for the staffs of the State universities. But alone it cannot take the strain, nor was it ever meant to do so.

What are the reasons for the indifference of the governments of the day to the needs of the State universities? Partly the lack of appreciation that a university should be much more than a collection of professional training schools, partly the divided responsibility between the State and Federal Governments, partly the pressure of other demands on the treasury pockets, which are not bottomless. Two of these other demands are clear enough. In an isolated and only partly developed country defence and development are urgent to maintain our independence. Where does tertiary education come in the list of priorities of government expenditure? The United Kingdom says high up, although in many ways she is in greater difficulties than we are. It seems that Australia does not agree, although it could be argued on objective evidence that both defence and development must rely in great measure on men trained in research methods. It does not seem unreasonable that the universities should continue to press their claims strongly, not for selfish reasons, but for the sake of the country's future.

To return for the last time to Sir Howard Florey's remark. What was he referring to when he spoke of abundant human resources? Sir Howard has been impressed by the record of our graduates overseas, and with reason. Here in Australia all faculties in our universities are well aware that the medical faculty attracts a higher percentage of the good students that come up to the universities than any other faculty: therefore they envy us in the medical faculty, even if they are sometimes sceptical about whether we make the best use of this excellent material. Do we make the best use of it? It is at the least doubtful, particularly in the overcrowded medical school in Sydney. It is impossible to stretch the good student to the limit of his capabilities in overcrowded classes. That failure, in any university which aims at self-respect, is a crime. Some of these students are stretched later, when an opportunity opens up, and we are often mildly surprised at their development, but some are never stretched to the point where it becomes noticeable, and perhaps that is why we have so many good practising doctors, who are a credit to their profession but have only a local reputation.

Leaving now the subject of medical education and turning to some other aspects of medicine, it is tempting for the aged to try to peer into the future, a future which

they will never see, a future which will never rise up in their lifetime to confound their prophecies. One thing is clear already—the skids are under the exogenous diseases. Some will disappear almost entirely, like typhoid fever today, tuberculosis tomorrow; others will remain, but under control. It is reasonable to guess that we will understand little more about their pathogenesis than we do today, which is almost nothing. But interest is going out of them. The Pasteurian revolution is over. Prophecy about the endogenous diseases is more difficult; with few exceptions we have not been able to get a lever in anywhere to throw light on the darkness. Still fascinating. As these are the diseases more particularly of the later decades of life, the problems will become more pressing as the population ages. What are we going to do with all the old people? At present we are still talking while the unselfish female relative bears the burden and often sacrifices her own life to a thankless task.

On the broader scale it is not difficult to descry great problems looming up in the not too distant future, and in one of these, medical science cannot remain indifferent. In many countries population is outrunning the food supply, and evidence piles up that malnutrition on a gigantic scale is already present and shows every sign of increasing as disease prevention gathers way and the death rate falls. We are naturally sympathetic with the activities of international bodies like the World Health Organization, but while the World Health Organization eschews any attempt to influence the birth rate, it will widen the gap between the birth rate and the death rate and put a further strain on the food supply.

It would seem that biologically, sociologically and economically we have not begun to catch up with the technological advances of the past century. The pace of these advances is so hot that no one has time to think about where we are going, or even to ask the question: "Are we posterity's keeper?" In many countries, including our own, we are engaged in the delightful pastime of living beyond our income, while the United States and the Union of Socialist Soviet Republics are preoccupied with the frightening prospect of Armageddon. If the prospect is grim, it is nevertheless reassuring to remember that man is the most adaptable of all the mammals and has survived innumerable crises in his long history.

THE OPPORTUNITIES FOR RESEARCH IN AUSTRALIAN MEDICAL SCHOOLS.

By F. M. BURNET, F. J. FENNER and I. J. WOOD,
Melbourne.

It is now almost an article of faith for those concerned with medical education and practice in the great centres overseas that no man or woman is fit for the highest levels of practice and teaching who has not had at least an apprenticeship in research. Both experience and achievement in investigation are regarded as essential before a man is appointed to any major academic post. This point of view is already firmly held by many in Australia and it is not likely that it will become any less widely held and influential in the future. We therefore feel that the request from the Editor of THE MEDICAL JOURNAL OF AUSTRALIA for an article setting out the present and potential facilities for research in Australian medical schools is timely. We have sought and obtained the cooperation of the deans of the four medical schools in the present attempt to comply with that request.

Medical research is a term that can be applied to a very wide range of activities carried out by people of diverse types of training and concerned with any of the vast range of subjects which may impinge on the problems of human health and disease. Here we are concerned with a more limited field. We wish to consider the opportunities and facilities for medically trained graduates to undertake investigational work as part of their post-graduate educa-

tion. In general we would make no distinction between research undertaken simply as a necessary part of training for clinical practice and research that aims to lay the foundations of an academic career. We would repeat the view of Sir Thomas Lewis that no medical graduate should adopt a whole-time research career until it is evident from increasing recognition outside his own school that he has the capacity to find a satisfactory life's work as an investigator.

There are two main fields to be considered. The first is applied research at the clinical level, which is concerned primarily with the observation and treatment of human beings. The second may be called basic medical research in which laboratory activities dominate, but in which the subject matter is more closely related to actual medical problems than to the advancement of pure science. Physiology and pharmacology, experimental pathology, "medical" bacteriology and virology are examples. The third important category of medical research is to be found in basic biological or biochemical studies from which discoveries of medical importance may arise, but which are not undertaken from this point of view. It is only rarely that a medical graduate nowadays enters these basic sciences and we shall be concerned only with the first two groups.

The normal undergraduate course in medicine is not in itself an adequate training for a research career. It is necessarily and rightly concerned with the production of good doctors primarily interested in effective service to their patients. The desire and capacity to add to knowledge is something that must be stimulated in different fashion. An important step toward interesting a few undergraduates in laboratory medicine has been taken in the Universities of Sydney and Adelaide. A limited number of able students spend a year during their medical course helping with a research project in one of the basic medical sciences, and incidentally qualifying for the degree of Bachelor of Medical Science. This innovation deserves support and should be extended, for it enables a student to gain experience in medical science at a period of his training when the subject of his interest is fresh in his mind.

Whatever a medical graduate intends to do, it is unwise for him not to complete and consolidate his medical course by a period of at least one and preferably two years as an interne. Once that period has been completed the particular direction in which any graduate will look for opportunity in research must depend first on his own particular interest and second on the facilities which for personal, financial or geographical reasons are accessible to him. Probably in most cases it will be determined by some specific interest evoked by one of his teachers or associates who will in turn be likely to provide either opportunity or advice as to where to seek it. It would be dangerous to lay down rigid rules. Ideally a training in one of the basic sciences should precede clinical research—in practice effective research is largely a matter of team-collaboration and a clinical investigator may be equally effective in his proper role whether he has ever been an experimental physiologist or not. The essential requirement is that the entrant to the research field should have the opportunity to tackle his first problem in an environment where the experimental method is being seriously and energetically applied by his colleagues. Specific training in this or that technique is less important than the influence of such an environment in fostering the blend of curiosity and logic, imagination and perseverance that is the most important tool of the investigator. Those characteristics are necessary to the clinical teacher and consultant and they are no less desirable in anyone destined to have charge of clinical laboratory services. In most hospitals in Australia at the present time the clinical pathologist, to the physicians and surgeons, represents scientific medicine. He can do this much more efficiently if he has had not only vocational training in that branch of laboratory medicine which is his specialty, but also training in experimental investigation.

It is a healthy tradition that first steps in research are taken in the university departments and the hospital laboratories of the graduate's own medical school. Any young graduate attracted toward research should first

discuss the matter with the head of that department to which he feels drawn. In all the universities there are opportunities for full-time or part-time work. For the first year at least a considerable financial sacrifice is usually necessary: there is rarely more than a bare living allowance. Once a worker has shown real capacity he can look forward to a modest financial reward and reasonable security. Probably a majority of those who enter and continue in research in university departments take a place eventually on the teaching staff. They and their students will be happier if they remember that their teaching is as important as their research and that pains must be taken with both.

The increasing specialization in medicine and surgery has led to the establishment in the hospitals of a number of well-equipped units in such branches as cardiology, urology and thoracic surgery. The addition to these units of young medical graduates eager to combine research with vocational training will greatly increase the effectiveness of the units and the quality of the training they afford to other doctors. An interesting recent development has been the tendency for members of some of the pre-clinical departments of the medical schools to enter the clinical field and bring the facilities and outlook of the basic medical sciences directly into contact with problems of clinical medicine.

Facilities in the Australian Medical Schools.

The following notes will indicate some of the facilities available for research training in the Australian medical schools.

Sydney: At present there are six full-time fellowships in the medical sciences for recent graduates, the funds for which are made up from various bequests and amplified by funds from the National Health and Medical Research Council. In addition there are limited grants available for part-time workers in various departments.

On the clinical side each of the main teaching hospitals provides opportunities. At the Royal Prince Alfred Hospital the Clinical Research Unit takes one junior Fellow in medicine, and there are fellowships in surgery, gynecology, cardiology and obstetrics. From time to time training fellowships are available in other specialties. The system is flexible and the point of view adopted is to watch for the right man and help him appropriately when he appears.

At the Royal Alexandra Hospital for Children the Department of Child Health has a number of junior posts for research in paediatrics. The other hospitals have no clinical research units, but opportunities will probably develop in the future.

The research institutes attached to the Sydney (Kanematsu), Royal North Shore (Kolling) and Royal Prince Alfred (Fairfax) Hospitals are all active centres of research in the basic medical sciences and provide openings for junior workers in the particular fields with which each laboratory is concerned. At the Fairfax Institute up to three Fellows in pathology may be appointed for training in clinical pathology and research.

Melbourne: All the pre-clinical departments of the Medical School are now active centres of research, funds being provided by various bequests and donations to the University and from the National Health and Medical Research Council. In addition to their more academic work most of these departments have now an active interest in the applications of their own subject to clinical problems.

The Walter and Eliza Hall Institute has developed a specialized field of research, virology, to which only an occasional recruit with medical training is likely to be attracted. It has been disappointing, however, to have found only one Australian medical graduate for training in this field since the end of the war as against six from overseas. The Baker Institute also provides opportunities for entry into relatively specialized fields of cardiac physiology and biochemistry.

Both these institutes are associated more or less directly with the clinical research units of the corresponding hospitals. There is also an excellent clinical research unit at the Children's Hospital. These units provide a valuable means by which men contemplating a clinical career can obtain at least a limited experience of the research approach. Other good clinical research of course goes on outside these units, notably in the teaching hospitals where a number of specialist departments are undertaking an increasing amount of clinical research.

The Commonwealth Serum Laboratories should also be mentioned as a place where opportunities for a research career in microbiology or biochemistry can be found.

Adelaide: Each department in the University of Adelaide has the normal facilities for research workers who can be supported as in the other universities by the University's own medical research funds or from the National Health and Medical Research Council.

The clinical departments of medicine and surgery have each one full-time and one part-time assistant who are encouraged to undertake investigation in addition to their clinical duties and one full-time research fellowship is available in each department. Expansion of activities may be expected when clinical chairs are established.

The Institute of Medical and Veterinary Science, though not now connected with the University, offers facilities for training in research both in the basic medical sciences and in the clinical field.

Queensland: The University of Queensland Medical School is the youngest and at the research level the weakest of the Australian schools. Good work has come from the teaching staff of several of the departments, but research funds are very limited and opportunities for training graduates in either basic or clinical research are inferior to those in the older schools.

The Queensland Institute of Medical Research has a major interest in epidemiology and parasitology and can provide research training in these fields.

Canberra: The Australian National University has an entirely different function from the State universities and must be considered separately. The John Curtin School of Medical Research has no undergraduates and no clinical research is contemplated. Its function is to undertake research in what we have called the biological and biochemical sciences and the basic medical sciences and to train junior workers in these fields. The University offers scholarships for training in research which are available to graduates in science or medicine. Next year when the University laboratories are functioning in Canberra they will be tenable there. Up to the present most of the scholarships have been used to provide overseas training.

Conclusion.

The medical requirements of the community are always changing and if it is to have any social function the objectives and techniques of medical research must constantly be adapted to changing circumstances. At the same time we must remember that if we are to attract men to the research field we need to provide opportunities for them to find a satisfactory life in a career of investigation. Success in research has a value both to the worker himself and to the community as a whole which is not to be measured in utilitarian terms. The search for knowledge is an important part of our Western cultural tradition and the prestige of high scientific scholarship is one of the legitimate sources of national pride. These are the aspects that are likely to bring the best men and women into a research career.

Yet from another angle we can argue that these things should be thought of as merely incidental to the benefit gained by the community from effective research. Without being false to our sense of the intrinsic value of knowledge we should contend that the real justification of an increasing emphasis and expenditure on research is to provide training that will make our best practitioners more effective in their professional work, that will ensure the availability of groups of workers competent

to deal with medical emergencies that may arise in peace or war and in general provide a haven of enthusiasm in the carrying out of all the necessary tasks of preventive and curative medicine.

Medical research has a double justification and as new fields of knowledge open up and new social needs are recognized, it must be extended to the new areas. We must regard it as part of our national obligation to see that our present facilities for the training of young medical graduates in research are steadily increased as need arises and men become available.

GENERAL MEDICAL PRACTICE AND THE YOUNG GRADUATE.

By MUNRO S. ALEXANDER,
Sydney.

WHEN the ambition of the preceding six years or so of the young graduate in medicine has been satisfied and he may call himself "doctor", spurious no doubt, as his legal contemporaries will not be slow to inform him, he has inherited the title to a great tradition in which service and sacrifice will be always well to the fore, with satisfaction close behind and self-aggrandisement a poor last.

Long before the cuffs of the young graduate's recently immaculate white coat commence to tatter the awful realization will be upon him that soon he must be on his way from the shelter of his hospital to seek his way in life. How?

Having been flattered by the Editor of this journal, who asked me to contribute this article, and despite Oscar Wilde's cynical *bon mot*: "All advice is bad and good advice is fatal", I trust that some of the words at least of this contribution may assist the recent graduate in his travail.

After certain necessary preliminaries have been satisfied there are six methods of entering general practice, namely, (a) accepting an assistantship with a view to entering into partnership; (b) entering into partnership with an already established practitioner; (c) buying a practice from a retiring practitioner or from a deceased estate; (d) "squatting"; (e) joining a group; (f) leasing a practice.

Preliminaries.

Apprenticeship in medicine, as in many arts, crafts, trades and other professions, is a moral if not a legal requirement. Where possible, at least one year's attendance as a junior medical officer at a public hospital is the most important preliminary to entering any form of medical practice: if into this one year the care of patients normally included in the study of obstetrics, gynaecology and paediatrics along with those of general medicine and surgery can be sandwiched, all to the good. Personally I feel that the tradition which existed before the 1939-1945 war of twelve months at a general hospital followed by about six months at each of a children's and a women's hospital is still to be sought after, even though the plethora of graduates has made the securing of these appointments difficult. The introduction in recent years of externe appointments, which in many ways cannot be so satisfactory as resident appointments, perhaps will be only a passing hazard for the young graduate. At all events he should try to plan ahead by seeking out his next hospital appointment long before the one which he holds terminates.

During this year there are three "musts": (i) the State Branch of the British Medical Association should be joined; (ii) the Medical Defence Union or similar organization should be joined; (iii) life assurance should be arranged. The reasons for the two last mentioned are obvious. Without entering into a lengthy panegyric of the British Medical Association, let me say that unfortunately to many membership of the Association consists of no more than the receipt of two journals at frequent intervals with monotonous regularity. As one privileged

to sit on a Branch Council, let me remind young graduates that the British Medical Association in Australia represents the organized body of the profession which considers matters of enormous variety ranging from having its say in the World Medical Association, negotiating with Federal and State governments, insurance organizations, medical benefits and hospital funds, and advising on a host of other matters all intimately touching on the affairs of their future welfare as general practitioners. The practitioner should play his part in this great democratic organization, consider the problems, express his views at local association meetings, attend the Branch scientific meetings, rub shoulders with fellow practitioners and absorb the tradition of medicine.

As a preliminary to entering practice, no more worthy, interesting and useful activity can be found than an association with one of the Services, the Navy, the Army or the Air Force, either on a part-time basis or even, for more adventurous souls—deprived of the unique opportunity of service in the 1939-1945 war—in full time service in theatres of overseas operations. Association with servicemen will mould and test character in a way in which few things can, and such time is never wasted, for in general practice character will be severely tested on many occasions.

The last point to be mentioned in the preliminaries is the desirability of gaining experience and of making useful contacts by doing various periods of work as a *locum tenens*. To imbibes the art of general practice in a variety of places is a most useful way of finishing an apprenticeship, for methods both good and bad will no doubt be experienced. A good *locum tenens* is offered opportunities unforeseen, so, if for no other reason, he should do his job well.

The Method.

"If two courses are open to you, choose the more adventurous one" was the advice of the late Lord Buxton. Yes, to enter medical practice is an adventure. If the precept of the following story is followed such an adventure need never be overwhelming.

About 1900 a young man, who later became my father, was private secretary to the general manager of the Highland Railway, Inverness. Listening one day to the reminiscences of the Law Agent of the company who in his youth was a brilliant and promising member of his profession in Edinburgh, he was prompted to ask if he ever regretted having left Edinburgh to practise in Inverness. The elderly man turned round in wrath and said: "I never regret."

The twists and quirks of fate oft-times leave us in places strange, but in choosing the medical profession as a career and having brought it to a successful start by graduation, a young man or woman will be well able to embark on the "never-regret" philosophy of life—and never abandon it.

Some random thoughts on the various methods of entering practice come to one's mind.

Where are these principals with assistantships and partnerships to offer and practices to sell, and groups to be augmented? Advertisements of the medical journals, from the British Medical Agency, from medical agents, should be sought and inquiries made among friends, among the "honorarys" in hospital, among the practitioners relieved when the seeker is a *locum tenens*, and in the understaffed, under-developed areas where a "squatter" may be welcome. Diligent search will be rewarded.

"Who will finance me if I do not have much money?" is a question that is asked. It is certain that many practitioners commence practice with little more behind them than a good degree and the will to work. The house has usually to be bought with a practice and in normal times the banks will usually advance substantial amounts on such property. However, a relative or friend to guarantee an overdraft is usually necessary. Medical agents, insurance companies and the "Medical Finance" subsidiaries of the British Medical Association are all ready to help. A medical officer after a year or two at hospital these days can usually save some money: in our

day, not so long ago, we were paid in shillings, not pounds. Many find that after some time in the services they have a substantial bank balance. In one way or another one can generally "raise the wind". In these days of high taxation and high cost of living, to obliterate one's overdraft is quite another matter. It should not be forgotten that expenses are high, too, in any form of practice. Recent United States figures put them in general practice as high as 40%, and Australia is not substantially different, from what one hears.

Entering a partnership may be a risky business although many have been successful. An old cliché in this regard is that "if the wives can agree it does not matter much about the doctors". Be that as it may, compatible temperaments and good agreements are essential ingredients of success. Sooner or later one will find also that a willing helpmate in the form of a wife is almost as essential to success as a degree.

Deceased estates are cheaper than going concerns, but it should be realized that no introduction goes with them. One has heard it said that if one goes to the country it is better to buy a well-established practice, as the patients always have gone to the one doctor's house, know the telephone number, and will continue to go to anyone who takes his place; if one goes to the city, a "run-down" practice is cheaper: the inhabitants come and go more, so it is easier to build it up. This may be so, but is not inevitable.

"Squatting" or setting up in a district and waiting for patients is quite legal, but must be handled carefully, especially in small centres with only a few doctors. The newcomer should never fail to pay the courtesy calls and try to get the established practitioners into such a frame of mind that, for them to carry on, they feel that they cannot do without him in the district. The financial anxieties whilst one is waiting may be great, but after a few years the end result will be normally little different from buying an established practice. In under-doctored and newly-developed areas, of course, things may be a lot easier.

Group practice is extending and may be of two main types: one in which all in the group are doing general work, perhaps each with an accent on, say, medicine or surgery or obstetrics; the other, in which an acknowledged specialist or specialists work in association with general practitioners on a part-time basis, doing, for example, all major surgery. Each type has its advocates, and they certainly do foster a harmony among all local practitioners which might otherwise be absent. These groups usually have a roster system for night, week-end and holiday duties. Many practitioners find that leisure hours are obtainable merely by having a working arrangement with fellow local practitioners for out-of-hours work with no actual partnership, in which, for example, four work together and have a "first on" at home to do all calls, and a "second on", not necessarily at home but on the telephone, available for anaesthetics and the like. This permits three more or less free week-ends out of four from Saturday midday until Sunday night. Fees collected by the medical officer on duty revert to the practitioner to whom the call was originally directed, and in all ways the arrangement can prove very satisfactory. Many similar systems adapted to local conditions work equally well and provide the essential twenty-four hours' service to a district without necessarily entailing the early demise of its doctors through lack of adequate recreation.

The Art of General Practice.

He who ventures to define the art of general practice is bound to find that he has many unwelcome critics and should have a Scot Skirving ability for lyrical expression. Neither desiring the former nor possessing the latter, I trust that it will suffice to comment on some aspects of this all-embracing subject which to me seem of consequence.

In this art character is all important. He who is naturally blessed with sympathy, tact, understanding, placidity (even when tired), and common sense, is half-way along the road: he who is not, must add their cultivation to his list of preliminaries. "Go when the patient

calls you" is a divine injunction, not always readily realizable, but few patients summon you if they do not want you to assist them in trouble, real or imaginary, and that after all is our job. Do not be disheartened by the apparent intricacies of the clerical work associated with the Pensioner Medical Service and the *Pharmaceutical Benefits Act*. The details are soon mastered. Learn to carry a light but firm rein in dealing with patients. Experience will teach the way to handle patients and colleagues.

Honesty in all things rarely fails, and especially is it so when it comes to seeking the admission of patients to hospital. When a patient is dying, tell the relatives even though you may prefer to follow the McKenzie dictum of "unjustifiable optimism" to the patient. One should put oneself in the patient's place, but never criticize a colleague on the basis of what a patient states he said. You will have yourself paraphrased by a patient one day, so tread warily in accepting a third party's statements.

How much to charge a patient for one's services and how often to see him are quite the hardest problems many of us have had to solve. Minimum fees for consultations and visits are usually fixed for any particular local association area and the local secretary or more senior practitioners will always be willing to give advice. The schedule of fees paid under the *Workers' Compensation Act* by insurance companies by agreement with the British Medical Association in the particular State is often a guide.

One is not free in general practice to dissipate a patient's resources in special investigations, and this is the biggest difference between hospital and private practice. More often than not, one has to rely on one's clinical judgement. I can recall a recent patient who clinically had hyper-tensive encephalopathy. After he had been subjected to thirteen different investigations in a large public hospital nothing more of value was known about his condition than was ascertained by taking a careful clinical history and making a simple routine physical examination. One should learn to rely on clinical judgement and patients will recover if treated though many a time and oft a scientific diagnosis has not been established, and furthermore, they will still have something left to fulfil the modest financial obligations they have to you.

Over-visiting and under-visiting are both evils. Perhaps the salient virtue of the now extinct friendly society or lodge system was that one attended a patient as often as one desired without fear of embarrassing him or her financially. When in doubt, ask the patient if he wishes to come again to your surgery or to have you visit him at his home. He will be a guide if expense is worrying him.

Meticulous accuracy in detail is required in any system of recording accounts and a suitable system can be seen in any colleague's surgery, especially when acting as a *locum tenens*. Good filing cabinets last an age and are a good investment.

Accountants and solicitors experienced in the work will always help in making agreements.

The practitioner should keep up his medical reading and not accept everything the trade travellers tell him. The Post-Graduate Committee in each State will always let one know courses available for special study.

Attend your local British Medical Association and hospital clinical meetings. Maintain your health by following a suitable sport. Indulge your leisure in a hobby of your choosing. Handle your dangerous drugs with conservatism and watch out for addicts: they seek out newcomers.

Even though a practitioner may think he knows all the answers, he should not hesitate to suggest a consultation with a senior colleague if dissatisfaction is suspected, preferably before the relatives suggest it. One's reputation is always enhanced by the presence and advice of a consultant, never belittled.

If you find you have an "incompatible patient" on your hands, suggest that he seek advice elsewhere rather than have him dismiss you. Learn to be punctual; learn what ancillary services are available in your community to

help the patients: district nurses, State homes and hospitals; almoners, legal aid and the returned soldiers' organization all have a part to play. The police should be assisted courteously: they can often help a practitioner. The ambulance service is usually the most efficient part of medical administration with which one will come into contact. Its officers should be treated with understanding, as also one must treat the local hospitals, private or public. Nurses are wonderful—usually—so much so that many doctors marry them! Remember that very often they have as many brains as you have, and often a lot more experience; make them partners in the successful conduct of your practice.

When one is a young graduate one hears of patients from "outside doctors" (horrible term). Now you may be one.

What is at times easy and clear cut with a clean patient between clean white sheets in a hospital ward is not always as easy some hours earlier, perhaps in a blackout, with the patient in the bottom of a double bed, with the baby howling, with one's gastric mucosa being tormented with delectable smells from the kitchen when one is hungry, or with one's olfactory mucosa being assaulted by nauseous odours from the patient's bed and home and with anxious relatives agog. One should make allowance for these and like factors when in hospital: too many young doctors are ignorant of them: may I repeat, far too many young doctors are lacking in understanding of the conditions under which the average general practitioner works.

Many a wise old general practitioner, who has not opened a medical journal for years, knows when a patient is sick, even though he may not know what ails him. Such is the art of medicine which must be learnt, and in the years to come, we may all become wise and old, too.

MEDICAL EDUCATION IN THE UNIVERSITY OF MELBOURNE.

By R. DOUGLAS WRIGHT,
Dean of the Faculty of Medicine.

THE general aim in education at the Medical School of the University of Melbourne is to provide undergraduate and post-graduate training with strict attention to theoretical knowledge; at all stages opportunity is provided for extensive experience in the practical applications of this knowledge. The way in which this conjunction is organized will be dealt with in detail under the several subjects.

Structure of the Course.

The medical course is of five years' duration and is open to students who have completed an examination in physics, chemistry and biology. The standard of this examination is that of first year Bachelor of Science in the University, and, while provision is made in the regulations for students to do the course of studies at any approved institution, only the University is at present offering such a course. In the year during which these subjects are taken, students are also required to attend a course of lectures on scientific method which is devoted to a consideration of how important notions in modern scientific theory have arisen and also to the standard methods of logic in an experimental relationship. In the four subjects of this year considerable trouble is taken to make the illustrative material of the course relate to problems which will be encountered in medicine, and in physics a special book dealing with these aspects has been prepared by the officer in charge of this course.

From the successful students of this preliminary year, and other adequately qualified applicants, 160 students are selected on the basis of academic performance to be admitted to the medical course proper. This course consists of three divisions. The first division occupies approximately two years and is taken up with anatomy,

biochemistry and physiology. The second division is essentially occupied by pathology and microbiology in the mornings, and clinical work in the afternoons. The third division (of a little over two years) is totally devoted to lectures and clinical work in medicine, surgery, obstetrics and gynaecology, including the associated specialties. On graduation 80 places are available for recent graduates in the metropolitan hospitals. Up to the present, almost all graduates obtained a resident appointment at some well-equipped hospital, but this year there was a surplus and it was necessary to make arrangements for some recent graduates to be taken as assistants by general practitioners in order that their clinical training could be brought to a satisfactory level. At the post-graduate level the hospitals offer senior appointments to allow training both in general medicine and surgery and in the specialties. The Melbourne Permanent Post-Graduate Committee, of which the University and the clinical schools are the main operatives, provides courses suitable for candidates proceeding to higher degrees in medicine and surgery and diplomas in several specialties.

Registrar's office. The numerous problems arising from student selection and expansion of university staff and facilities in the clinical field would be impossible without this highly efficient organization.

Staffing.

In recent years the staffing in the Medical School has been greatly improved and for convenience of reference a table of the staffing and number of students of the several departments is set out in Table II.

Division I.

Anatomy (including Histology and Embryology).—The Department of Anatomy is housed in a building well suited to students' requirements and recently adapted to provide for staff research requirements. During the first year the students' work in this department is devoted to dissection and lectures and practical work in anatomy, histology and embryology. Each group of students is allotted to a demonstrator who guides the students on the part to be dissected

TABLE I.
Showing Plan of Course, Faculty of Medicine, University of Melbourne.

TERMS		VACATION												FIRST					VAC.	SECOND					VAC.	THIRD					V.	FOURTH					VAC.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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YEAR		WEEKS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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E and S = annual and supplementary examinations. EP and SP = pharmacy examination and supplementary.
EMJ and SMJ = medical jurisprudence examination and supplementary.

Administrative Organization.

The subjects of the course and the manner in which they are taken are laid down in regulations by the Council of the University. The initiative in this matter and in all matters of detail in the course is in the hands of the Faculty of Medicine. The Faculty has upon it representatives of the major departments and institutions in which teaching takes place. The departments involved are: anatomy, biochemistry, physiology, pathology, microbiology, medical jurisprudence, medicine, surgery, obstetrics and gynaecology. The institutions are the three general hospitals, the Royal Melbourne Hospital (600 beds), the Alfred Hospital (500 beds), and Saint Vincent's Hospital (330 beds). The special hospitals are the Women's Hospital (352 beds), the Children's Hospital (486 beds), the Eye and Ear Hospital (105 beds), and the Infectious Diseases Hospital (652 beds). The separate institutions involved in teaching are the Victorian College of Pharmacy and the Department of Mental Hygiene. The Melbourne Permanent Post-Graduate Committee is also represented on the Faculty.

Several standing committees of Faculty are concerned with the development of coordination between the subject matter and administrative arrangements for unifying the course both as from year to year and as between the subjects of a given year. The principal committees concerned are the Pre-Clinical Executive Committee, the Coordinating Committee of Clinical Studies and the Curriculum Committee. All these bodies are extremely active and there is a continuous review of the results of innovations or established practice in the course.

The formal administration of the school's affairs is carried out by the scientific and medical section of the

by demonstrating carefully prepared dissections. The student then proceeds to carry out his own dissections on the body. During the second year the students continue with dissection and lectures in all branches of the subject. In this year, however, the practical work in anatomy is under the supervision of practising surgeons and special arrangements are made for lectures on the clinical importance of the anatomy of the parts being dissected. Groups are taken to the hospitals and cases illustrating the features of the particular region being dissected are demonstrated. The material available to the students for dissection is difficult to obtain at present and as a consequence students dissect each part working as a group. This year the groups consist of four students, but this varies from year to year, depending on availability of material. In histology a box of prepared slides is issued to each student to be studied either in the classes or at home. A well-equipped and well-stocked museum of anatomical and embryological specimens is available to all students. The latter material and the lectures in embryology are designed to introduce the student to the principles of embryological development, with particular reference to the basis of embryological abnormalities encountered as clinical problems.

The research work of the department is devoted principally to the nervous system, and the officers of the department provide a voluntary course in neuro-anatomy of a standard which provides a first-rate background for neuro-physiology and clinical neurology.

Biochemistry.—In the Department of Biochemistry the students in the first year have 45 lectures on the chemistry and elementary biochemistry of the substances of living matter, proteins, carbohydrates, lipides and enzymes receiving special attention. There are twenty-five practical sessions of two and a half hours each carried out in

TABLE II.

Department.	Teaching Staff.										Students.										
	Professor.	Associate Professors.	Lecturer in Charge.	Senior Lecturers.		Lecturers.		Demonstrators.		Medicine. Division					Science. Year.		Dentistry. Year.		Agriculture Year.		
				F.T.	P.T.	F.T.	P.T.	F.T.	P.T.	I.A.	I.	II.	III.		2nd.	3rd.	2nd.	3rd.	3rd.	4th.	
													4th Year.	5th Year.							
Anatomy (including Histology)	1	1	—	4	—	1	—	7	11	177	183	—	—	—	—	—	—	—	—		
Biochemistry	1	1	—	3	1	2	3	5	16	177	183	—	—	—	47	17	44	41	—	32	15
Physiology (including Pharmacology)	1	1	—	—	—	1	—	4	11	177	183	—	—	—	51	1	41	—	—	34	—
Pathology	1	—	—	2 + 5 ^a	—	3 + 2 ^a	4	1	15	—	—	143	—	—	—	—	—	58	—	—	—
Microbiology and Public Health	1	2	—	3	—	3	1	6	9	—	—	148	—	—	—	—	59	—	—	—	—
Medicine	—	—	1	—	9	—	—	—	—	—	—	—	159	192	—	—	—	—	—	—	—
Surgery	—	—	1	—	10	—	—	7 ^a	—	—	—	—	159	192	—	—	—	—	—	—	—
Obstetrics and Gynaecology	1	—	—	2	—	2	3	1	1	—	—	—	159	192	—	—	—	—	—	—	—
Medical Jurisprudence	—	—	1	—	—	—	2	—	—	—	—	—	159	—	—	—	—	—	—	—	—
Experimental Medicine	1	—	—	1	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

^a These are pathologists at the several clinical hospitals and are entitled, for university purposes, senior associates.

^b Honorary lecturers.

^c Clinical supervisors.

conjunction with this course of lectures. In the second year of the course attention is given to the mechanisms of intermediary metabolism and their regulation by the endocrine system and other factors. The recent increase of this course to thirty lectures is making it possible to handle other advanced aspects of biochemistry of interest to medical students. The number of practical sessions has been reduced to thirteen in this second year of the course at the present time. This is compensated by the inclusion of twelve practical sessions concurrent with the course in pathology; the subject matter of these is coordinated with the subjects under study in pathology. The Senior Fellow in Chemical Pathology who has recently been appointed to the department will assist in the conduct of this course. It is expected that this appointment, held jointly at the Royal Melbourne Hospital and the University, will greatly advance study of clinical biochemistry in the school. The appointment was made possible by a contribution from the Nuffield Foundation.

The research work in the department is upon thyroid mechanisms, protein synthesis and porphyrin pigments, dietetics and dental caries.

Physiology.—Students in the first year of the course have forty lectures on cellular physiology and the physiology of the nerve, muscle, circulatory system and blood. They have twenty-four sessions in the laboratory, half of which are of six hours' duration, half of two and a half hours' duration. In the second year there are forty lectures on the remaining systems of the body and twenty-one practical classes of similar duration to those in first year. In the practical classes in this subject the student has the opportunity to carry out experiments on a variety of systems, both in the living human and on appropriate tissue in animal preparations. The aim of these practical classes is to teach basic experimental techniques, and the student is encouraged to carry out investigations of his own design.

During the summer vacation students are required to write a review of a general topic in physiology—for example, in 1952, "Basal and Reserve Functional Activity of Organs and Systems". This method has been adopted to encourage consultation of the original literature by students. Each student is also required to present a topic to a discussion group of his fellows.

In order to introduce the student to the application of physiological knowledge to medicine at an early stage, students are taken to the hospitals in their second year for demonstrations of physiological features of cases of disease—for example, hemiplegia, congestive cardiac failure, diabetes.

In the second year of the course students have twenty lectures on general pharmacology and the action of com-

mon types of drugs. The practical work in pharmacology is integrated with the practical work in physiology in the classes referred to above.

The aim of the course is primarily to encourage the study of principles—the more obvious, the more important.

Research work in the department is directed toward the study of electrolytes at the level of cellular physiology and renal regulation; the other main branch of study is the mode of action of drug substances, whether generated in the body or elsewhere.

The Examination.—At the end of his first year the student is required to sit for an examination and pass in anatomy, physiology and biochemistry. At the end of his second year he sits for an examination in the subject matter of the two years and is required to pass in all three subjects at the one examination (including the supplementary examination) before going on to division II.

Division II.

On the completion of division I the student does six weeks' work in the subjects of division II before the Christmas vacation, and upon return completes twenty-six weeks before examination in pathology and microbiology. The work of this division includes attendance for clinical instruction at the hospitals, lectures and practical classes in pathology and microbiology, *materia medica*, and lectures in psychology. In the period before Christmas introductory classes are given of a general orientation type; after the vacation systematic classes begin.

Psychology.—The lectures in psychology are designed to give the student an appreciation of basic normal levels of intelligence, emotion and other simpler concepts. From this ground work the lectures move to the simpler psychological problems of a patient with disease and the patient-doctor relationship.

Materia Medica.—A short course on composition and preparation of drug substances is given at the Victorian College of Pharmacy. Prescriptions, incompatibles *et cetera* are dealt with and practical classes in dispensing of prescriptions are provided. At the end of the course of four weeks the student is required to pass an examination in this subject.

Clinical Work.—During the afternoons at this stage the student attends in-patient medicine and in-patient surgery. He is responsible for history-taking and his instruction is directed toward eliciting and interpreting the physical signs of disease.

Pathology.—A course of seventy lectures is given on general and systematic pathology. In this latter group emphasis is given to the correlation of pathological features with clinical symptoms and signs. This aspect of the study

is developed further in the post-mortem demonstrations carried out at the hospitals by officers of the university departments with the cooperation of the hospital pathologists who hold university teaching appointments. Four students assist at each post-mortem examination and are responsible for preparing the organs and histological specimens for presentation with a commentary to an officer of the department and other students. To each student is issued a set of histological preparations illustrating general pathological processes, and after a preliminary demonstration by means of a projector, several students with a demonstrator undertake detailed examination of this material. A well-stocked museum is available for the study of macroscopic preparations. Biochemical work, as mentioned under biochemistry, is correlated in time with appropriate lectures. Hematological investigations are carried out mainly at the hospitals. Each student is instructed in the

immunity are dealt with. Bacterial and viral organisms are given almost equal emphasis. Following the teaching of the above topics a series of lectures deals with the epidemiology and chemotherapy of infectious diseases. It is considered more important that the student should understand the factors determining the incidence of bacterial diseases, their mechanisms of transmission, sterilization, chemotherapy and immunization than that he should remember the biochemical and other reactives for classifying the various species of organisms. Students are encouraged to undertake investigations relative to the field of study and, in collaboration with senior members of staff, have already produced a number of interesting results.

The practical course is arranged so that the topics of the lectures are illustrated by the laboratory procedures. Nose and throat culture surveys of students are made,



The Departments of Physiology and Pathology, University of Melbourne.

preparation of histological specimens, carrying out all procedures from fixing of the specimen up to staining of the section.

The research programme of the department is devoted mainly to the study of changes in blood vessels, the behaviour of tumours during development and their relation to neighbouring tissues, the specificity of tissue reactions to fractions of the tubercle bacillus, and a number of topics in several specialties.

Microbiology and Epidemiology.—The course consists of approximately sixty lectures and twenty-six sessions of two hours each in the laboratory. It is designed to provide a training suitable to first-class practitioners and to stimulate a research attitude. Systematic taxonomy is explained but not explored. The general behaviour of the organisms is treated from the point of view of both the mechanisms of their own survival and the mechanisms of injury to the host. Questions of natural and acquired resistance and

serum reactions are carried out and experimental procedures on the factors which are important in epidemiology are investigated. Students also carry out experiments on air hygiene in their own hospitals.

Housed in the department under the control of the professor is the Public Health Bacteriological Laboratory for the State of Victoria. While this arrangement has some disadvantages in crowding the department, it has compensating advantages in keeping a live stream of problems in both bacteriology and epidemiology going through.

The research programme of the department is devoted partly to studies of the bacteriology of the alimentary tract, tuberculosis, epidemiology of bacterial diseases and, in collaboration with workers in the University of Sydney, to development of chemotherapeutic substances.

The Examination.—An examination is carried out at the end of this division in pathology and microbiology including epidemiology. The examination is both written and

practical and by *viva voce*. Only in exceptional circumstances is the student allowed to proceed to the next division before passing in these subjects.

Division III.

In this division of the course the work of the student is devoted to the three main clinical subjects—medicine, surgery, obstetrics and gynaecology—and in addition there is a course in medical jurisprudence. The teaching is partly by lecturers, but principally by work in the wards. The usual specialties are grouped either with medicine or surgery and will be dealt with under those headings.

Medical Jurisprudence.—Medical jurisprudence comprises lectures in the nature and functions of law, toxicology, workers' compensation, the examination of the dead body and causes of death from causes bringing the death within the Coroner's jurisdiction, medical ethics and the laws relating to insanity. The Lecturer in Medical Jurisprudence is a part-time officer of the university and also pathologist to the Coroner, City of Melbourne. Material from the Coroner's Court is used in teaching and to provide a small museum containing specimens of medico-legal interest. The aim of the course is to deal with the various topics from the point of view of the medical practitioner. Provision is made for research into medico-legal problems both at the university and at the Coroner's Court. The principal researches have been upon the detection and estimation of alcohol and pharmacological substances in the blood, and the more precise identification of cause of death in sudden fatalities in infants. At the end of the course students are required to pass an examination.

Medicine.—The student entering this division has already done one year's work in in-patient medicine at the clinical schools. Over the two years of division III he has twenty-four weeks attending in-patient medicine concurrently with out-patient surgery, and twenty-four weeks attending out-patient medicine concurrently with in-patient surgery. Patients are allotted to the student, who is required to keep full clinical records of the case and carry out normal ward investigations upon it. Each case is brought under review by an approved instructor. In the event of death the student is required to provide a report of the autopsy. In the hospitals in the Medical School approximately 90% of patients who die at the hospital are subjected to post-mortem examination. The student also attends a course of forty lectures on the principles of medicine. These are supplemented by clinical lectures given at the hospitals on more specialized topics.

In addition to the above instruction, the student attends for twelve weeks at the Children's Hospital for instruction in paediatrics. The course is organized by the lecturer in paediatrics and comprises both lectures and clinical work. Therapeutics and dietetics are dealt with systematically in a course of lectures given at the hospitals. The arrangements for teaching in mental diseases are that the student shall attend at the psychiatric clinic of the general hospital for experience in common minor mental disturbances encountered among patients in that hospital. In addition he attends at the Receiving House twelve demonstrations of major mental disorders. There is provision also for the student to attend consultations between physicians and psychiatrists on the psychological problems of patients in the general wards.

The student also attends at the Infectious Diseases Hospital for clinical experience in the epidemiology and clinical manifestations of infectious diseases. Arrangements are also made for personal experience by the student in medical ophthalmology and dermatology. A course of lectures in radiographic appearances of common diseases is given and special demonstrations in this subject are set up.

The university officers concerned in teaching this subject are the Stewart Lecturers in Medicine, who, under the Stewart Lecturer, give the general course of lectures in medicine; the Lecturer in Paediatrics, who organizes the course at the Children's Hospital; the Lecturer in Therapeutics and Dietetics at each of the teaching hospitals; and the clinical supervisors and demonstrators located at each hospital. The function of the clinical supervisors is, in

association with the dean of the clinical school at each hospital, to allot the students to the several clinics and to ensure that the provision that the student must satisfactorily perform any duties associated with his clinical work is carried out. The clinical demonstrators undertake the instruction of students in basic principles in clinical work by carrying out demonstrations illustrative of these principles. The main clinical instruction at the hospitals is given by the honorary medical officers of the hospitals concerned. The general organization of this work is in the hands of the dean of the clinical school, but coordination of the work of the honorary medical staff and the university officers is ensured by their co-membership of the Committee of Clinical Studies of the university and the board of studies at each hospital.

Each of the three general hospitals has made arrangements for the student to see something of medical practice outside the hospital walls. The students are allotted to visit patients at home with members of the District Nursing Service for a short period. Recently each hospital has arranged for selected general practitioners to take into their practice for one or two weeks a student in an advanced stage of his clinical instruction. The student accompanies the doctor both in his surgery and on his visits. This scheme has worked extremely well and the students are enthusiastic in their praise of the kindness of the practitioners and the level of clinical experience which they get.

Surgery.—The general plan of teaching in surgery is essentially the same as for medicine, and the arrangements set out under medicine can be taken to apply to surgery with minor additions. The special instruction in surgery is in orthopaedics, thoracic surgery, radiotherapy, otolaryngology, venereal diseases and anaesthetics. Six lecture-demonstrations are given on venereal diseases at the special clinics in each hospital. A course of nine university lectures is given in anaesthetics by a university lecturer and the student administers anaesthetics in fifteen cases under the supervision of the anaesthetists at the hospitals. The director of anaesthesia at each hospital also carries out demonstrations and tutorials to small groups of students. In the other specialties listed special lecture-demonstrations are given upon methods of examination and the more important conditions encountered in the specialty.

The student attends at the surgical operations of his clinic, assists at emergency surgery on the receiving days, and attends in the casualty room as an active participant for a period of a fortnight. Operative surgery is dealt with in a course of systematic lectures and twelve lectures are given on surgical anatomy.

The forty lectures given by the Stewart Lecturers in Surgery are divided into fourteen on general surgical principles, trauma, infection, antibiotics and resuscitation; twelve lectures mainly on abdominal surgery and thirteen lectures on special surgery, such as urology, orthopaedic, thoracic and neurosurgery. The series is completed by a lecture on the history of surgery.

The Examinations.—The examinations in both medicine and surgery take place toward the end of the fifth year of the course and consist of a written paper, an essay or commentary, and clinical and practical examinations on the topics dealt with during the course. The emphasis in these latter examinations is upon practical procedures rather than recitations.

Obstetrics and Gynaecology.—The students are given an introductory course of nine lectures on normal obstetrics at the end of the third year of the course. During the fourth year twenty-four lectures on abnormal obstetrics and three on the new-born baby are given. During the fourth year each student attends at the Women's Hospital for six weeks in residence and two weeks non-residential. During his stay a special course of instruction by lectures, clinics and demonstrations is provided by the Professorial Unit and the honorary medical staff of the hospital. Students personally conduct deliveries and keep detailed records of these cases. The practical work provides material for tutorials given by the members of the Professorial Unit. During the fifth year of the course each

student returns to the Women's Hospital for two weeks for an intensive refresher course of lectures, ward rounds and instruction in practical obstetrics. At this stage difficulties met by students are dealt with.

During the fourth year a series of fourteen lectures on gynaecology is given. Clinical instruction is given partly while the student is in residence at the Women's Hospital and partly in the gynaecological clinic of his clinical school. The students are responsible for the history and examination and detailed records of cases allotted to them, and provision is made for tutorial classes by the members of the Professorial Unit. A refresher course in gynaecology is run concurrently with the refresher course in obstetrics in the fifth year.

The Examination.—The examination comprises a paper in obstetrics, a paper in gynaecology, commentaries on these subjects, and clinical examinations in both sections.

On completing the course and examinations set out above, the student is awarded the degree of Bachelor of Medicine and Bachelor of Surgery (M.B., B.S.).

In divisions I A, I and II consultation of examiners takes place so that a student on the borderline in one subject may obtain the advantage of a good performance in another subject. At the final examinations, however, the student must pass clearly in each subject.

Post-Graduate Qualifications.

The University of Melbourne offers as senior qualifications in medicine the degrees of Doctor of Medicine and Master of Surgery, and diplomas in anaesthesia, laryngology and otology, gynaecology and obstetrics, ophthalmology, diagnostic radiology, therapeutic radiology, and psychological medicine. Courses of instruction are not compulsory for candidates proceeding to these qualifications, but courses are provided by the university departments and the hospitals working together in the Post-Graduate Committee. The examinations for these qualifications are in two parts: Part I, usually in anatomy, physiology and biochemistry; Part II covering pathology and the special subject of the examination. The only requirement for graduates wishing to be candidates for these examinations is a period of one to two years' experience in general medicine and surgery, and for the diplomas, varying periods of experience in clinics or hospitals devoted to the specialty. Provision is made for the award of these qualifications (except Master of Surgery) on the basis of substantial original work in the appropriate subject.

Research Opportunities.

With the exception of the departments of medicine and surgery, every department offers to graduates the opportunity to carry out research in the subject of the department. Local research funds have been considerably augmented in recent years and the National Health and Medical Research Council has been able to support an increasing number of graduates engaged in research. Recruitment to this activity has greatly increased and it is obvious that when departments of medicine and surgery are fully developed there will be sufficient interest in the academic problems of medicine and surgery to ensure satisfactory staffing. Much effort has been put into the establishment of these departments over the last four years and it is hoped that they will soon be set up. In the meantime the department of experimental medicine, which is housed at the Walter and Eliza Hall Institute, provides the principal opportunities for such workers. The recent recognition of the clinical research units at the Royal Melbourne Hospital, the Alfred Hospital and the Children's Hospital for the purpose of training for university research degrees should also widen the opportunities for research in the clinical field.

From the description of the activities in the Medical School it can be seen that students in the University of Melbourne can go ahead to full professional competence whether in practice or research. The old system of going abroad for senior qualifications is gradually giving way to

one in which the student secures his professional qualification locally and goes abroad for special study. The aim of the school in setting up senior qualifications was not to discourage the student from going abroad, but to provide him with a level of training which would make overseas visits more profitable. This object is being achieved.

THE MEDICAL CURRICULUM OF THE UNIVERSITY OF SYDNEY.

By C. G. LAMBIE.

(From the Department of Medicine, University of Sydney.)

THE medical curriculum of a university should be designed to provide not merely a professional training, but the scientific basis of medical studies.

Since there are many avenues open to the man with a medical degree, the curriculum should be concerned not only with the training of general practitioners but with laying the foundation of a variety of possible careers within the field of medical science and practice.

In the early stages of his career the medical student cannot be expected to appreciate the bearing of all that he has to learn upon his future professional work. In order to remove any misunderstanding in this regard, an attempt is being made in the University of Sydney to explain to the student the general design of the curriculum and the nature and purpose of each subject in it. When submitting himself to the earlier scientific disciplines, he is encouraged to take a delight in each subject as he encounters it and to forget for the time being that "far-off divine event" to which the whole curriculum moves.

In the post-war period two types of suggestions were put forward for the modification of the medical curriculum. On the one hand it was proposed to continue the teaching of the earlier subjects into the later part of the curriculum; on the other hand it was suggested that many subjects now taught in the later stages should be begun early and stressed throughout—for example, some clinical work, psychiatry, social medicine, paediatrics. If both of these suggestions were to be adopted simultaneously, the medical curriculum would be reduced to a parallel series of snippets.

The medical curriculum in the University of Sydney is constructed on the principle of the pyramid—broad at the base and tapering to the tip; the base is constituted by the fundamental sciences, while the apex is the study of the individual patient. Each stage of the curriculum is a necessary preparation for subsequent stages. The general scheme may be seen from Table I.

First Part of the Curriculum: The Basic Sciences.

Chemistry.—Although, for reasons of accommodation and staffing, students in a medical faculty are taught in a separate group, the course is practically the same as that for first-year science students. The instruction deals with essential principles and is no longer framed along traditional lines dominated by the special needs of students of engineering.

Physics.—The same principles apply to physics as to chemistry. An attempt is made to select illustrative material from the field of medical science.

Botany and Zoology.—Botany and zoology are still taught as separate subjects, although the question of combining them into one course on biology has been mooted. The only advantage, if any, of such a combination would be a greater emphasis on general principles and a saving of time, enabling some anatomy and perhaps more chemistry to be introduced into the first year.

Second Part of the Curriculum: The Study of the Normal.

There is at present no correlation between the courses of anatomy and physiology, save in respect of neurology, where such integration is essential. On the other hand, arrangements have been made for the coordination of the courses of physiology and biochemistry. The first part of the course of physiology is devoted to general physiology, while the second part deals with special physiology.

The courses in the above subjects are designed to equip the student with a knowledge of the normal structure and function of the human body and thereby to enable him to understand the departures from the normal to be studied in the next part of the curriculum.

TABLE I.
Showing General Scheme of Medical Curriculum.

Division of Curriculum and Scope.	Period Covered.	Subjects.
First part (The basic sciences).	1st year (3 terms).	Biology (botany and zoology). Physical science (physics and chemistry).
Second part (The study of the normal).	2nd year (8 terms) and part of 3rd year (2 terms).	Biology, with special reference to the normal structure and functions of man. (Gross and microscopic anatomy, embryology, physiology, biochemistry and psychology).
Third part (The study of disease). A. The systematic courses.	Late 3rd year (1 term) to middle 4th year (2 terms).	(a) Pharmacology: The paraclinical sciences: pathology and bacteriology.
	4th year (3 terms).	(b) Combined course by the Departments of Medicine and Surgery and including the regional specialties of dermatology, ophthalmology and oto-rhino-laryngology, on (i) the principles of medicine, (ii) the principles of therapeutics and surgery.
	Late 4th year (1 term).	(c) Pharmacy: History of medicine.
	Early 5th year (1 term).	(d) Paediatrics, psychiatry, obstetrics and gynaecology.
	5th year (3 terms).	(e) (i) Combined course by the Departments of Medicine and Surgery, including the regional specialties, on specific diseases. (ii) Course on infectious diseases at the infectious diseases hospital.
B. Clinical studies.	5th year (1 term).	(f) Preventive medicine.
	5th year (1 term).	(g) Medical jurisprudence and ethics.
	4th, 5th and 6th years.	Hospital work.

The course in psychology, given in the Michaelmas term of the third year, rounds off the study of normal function. At this stage no attempt is made to discuss the patient-doctor relationship—a subject introduced in the course on the principles of medicine in the fourth year.

Third Part of the Curriculum: The Study of Disease. Pharmacology, Pathology and Bacteriology.

Pharmacology and the paraclinical sciences (pathology and bacteriology) are commenced in the Michaelmas term of the third year. Pharmacology naturally follows physiology and biochemistry in the curriculum and forms a useful link between the study of normal function and function as modified by chemical and physical agents. This course deals with the scientific study of the action of drugs upon living organisms—largely normal tissues—with minor references to therapeutic applications. It forms a necessary preparation for the lectures on the principles of therapeutics which follow in the fourth year and which are correlated with the course on the principles of medicine.

The teaching of pathology and bacteriology likewise begins in the last term of the third year and extends to the end of the second or Trinity term of the fourth year,

when the first part of the fourth degree examination (in pathology, bacteriology and pharmacology) is held. These courses therefore anticipate by one term those on the principles of medicine, surgery and therapeutics and so clear the way for the understanding of physical signs, symptoms and disease processes as seen in the living patient.

Medicine, Surgery and Therapeutics.

The first systematic course in medicine, surgery and therapeutics begins in the first or Lent term of the fourth year and extends to the end of the fourth year, while pharmacy is taught during the last term of the fourth year. At the end of the fourth year the second part of the fourth degree examination (introductory medicine and pharmacy) is held. The object of the examination in introductory medicine is to ensure that students will be able to benefit by the teaching they are to receive in hospital during the subsequent years of the curriculum. Its introduction has led to a definite improvement in the standard attained in the later years. Students who fail to pass this examination are required to repeat the year, taking again the courses in medicine, surgery, therapeutics and pharmacy.

A course on the history of medicine is given at the end of this year.

The distinctive features of the teaching of medicine and surgery in Sydney are the following.

1. These subjects are taught from three different points of view in the fourth, fifth and sixth years respectively of the curriculum.

The fourth year is devoted mainly to a consideration of abnormal function and structure and the manner in which these manifest themselves in symptoms and signs. This course is correlated with that on the general principles of therapeutics which deals with the restoration of function and structure by means of remedial measures.

In the fifth year the course deals with specific diseases and with following the course of disease in the individual patient. At the same time the specific therapy of the diseases described is discussed.

The sixth year is devoted mainly to differential diagnosis and prognosis and a synthesis of all previous points of view.

2. A correlated programme of lectures is drawn up at the beginning of each academic year on medicine, surgery and therapeutics. This correlated course includes introductory lectures on the regional specialties (dermatology, ophthalmology and oto-rhino-laryngology) which are fitted into the general courses in the fourth and fifth years at the appropriate times according to the particular point of view, as above described.

The lectures on the principles of medicine in the fourth year deal not only with the mechanisms of symptoms and signs and the nature of the underlying changes in structure and function, but also with general aetiology, the general reactions of the body in disease, various types of disease processes and the study of human personality in disease. The last mentioned is not considered as a separate entity but as an integral part of the whole subject. Medicine is presented as a synthesis of many sciences bearing upon the understanding of disease in the individual patient. It is not treated as a specialty, but is concerned with the patient as a whole and disease in its human setting. The course is the most important link between the pre-clinical and clinical sciences, to which it is introductory, and, while not a specialty, it forms the basis of all clinical studies.

In the course on specific diseases in the fifth year, physicians, surgeons and specialists combine to present each disease as a whole. Only those diseases are selected for description which are either of world importance (for example, malaria, tuberculosis) or of special local interest (hydatids, various acute infections).

In connexion with the clinical lectures given in the final year a list is drawn up, for the information of lecturers, of subjects which lend themselves to discussion from the point of view of differential diagnosis and prognosis. This prevents overlapping of the teaching with

that given in systematic lectures in earlier stages of the curriculum.

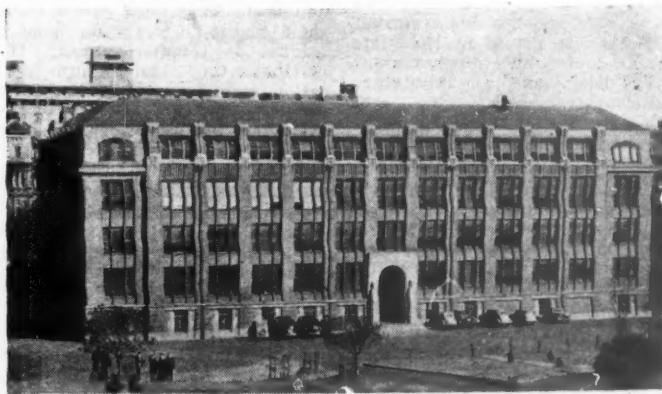
3. Systematic lectures in the fourth and fifth years are illustrated, and as far as possible introduced, by the demonstration of patients, so that the problem is first stated from the clinical point of view and presented in its proper clinical context.

Clinical lectures on differential diagnosis are confined to the sixth year and are, of course, accompanied by clinical demonstrations.

4. The systematic courses are correlated with clinical instruction. For example, in the fourth year clinical tutorials are given on the examination of patients and the eliciting of symptoms and signs, and there is a practical course on clinical laboratory medicine. In the fifth year the emphasis of clinical teaching is upon careful history-taking and following the course of disease. In the final year, when the student is concentrating on differential diagnosis, and by which time he has acquired some familiarity with diseases as well as with methods of examination, he attends the medical out-patient department. It is not considered wise for students to enter the medical out-patient department in the early stages of their

and this is put into a sealed envelope. He also discusses his prognostications with the other clerks. The clinical findings are then carefully compared with those revealed at the post-mortem examination. After the examination the clerk arranges with the pathologist to go over the microscopic sections, and at a subsequent epicrisis, attended by the whole group, the sealed envelope is opened and the clinical clerk demonstrates both the naked eye and microscopic preparations. A discussion then takes place summing up the whole case.

6. In the final year, after the student has had more clinical experience, he is given further instruction in practical therapeutics, including prescribing, so as to round off his knowledge of that subject. He is now attached to the wards of one of the medical or surgical units, does rounds with physicians and surgeons and acts as a senior clerk, assisting the resident medical officers. Where accommodation is available he may also have a period of internship during this year. This gives him the opportunity of seeing patients when first admitted to hospital or to the casualty department. It is not considered advisable that all theoretical instruction and examinations should cease at the end of the fifth year, and the entire final year be



The New Medical School, University of Sydney.

clinical instruction, for there they will see the rapid and apparently superficial examination of patients and so take unkindly to the discipline necessary for the acquisition of thoroughness before speed.

5. In the fifth year all students at the Royal Prince Alfred Hospital attend the clinics of the professors of medicine and surgery for one term, while clinics along similar lines are given in the other teaching hospitals. In the medical clinic emphasis is laid upon the thorough study of a small number of patients rather than upon the superficial examination of many. Every student is required to take at least five full case histories—one from each of the main systems and one from another system. Instead of being discussed in ward rounds, patients are brought into a small clinical theatre where they are presented by the clerks allotted to them, and examined and discussed from every point of view by the group. Clerks act as assistants to the resident medical officers, assisting with the ward laboratory work and all therapeutic and diagnostic procedures, and they are made to feel that they are doing a real job. At the beginning of the term five demonstrations are given on nursing by the sister tutor, and for one week of the term each student is seconded for nursing duties under the supervision of the ward sister. There is also a close link-up with pathology. When the death occurs of a patient previously allotted to a clinical clerk, the clerk becomes the post-mortem clerk and all members of the clinic have to attend the autopsy. Previous to the section, the clerk writes out his predictions as to the findings to be anticipated at the post-mortem examination

thus devoted to a sort of apprenticeship. It is difficult enough to fit in all the teaching a modern university medical school should provide within the time available in a six-year curriculum, and the student is removed all too soon from the academic atmosphere. Such a scheme would stress the acquisition of technical skills at the expense of academic training; but it is considered in this school that such vocational training can be adequately obtained after graduation, during an internship under the supervision of senior members of a hospital staff.

Psychiatry, Obstetrics, Gynaecology, Paediatrics.

The systematic courses on psychiatry, obstetrics, gynaecology and paediatrics are given during the long vacation term of the fifth year. Like the systematic instruction given in the fourth year on the principles of medicine and surgery, they are introductory to the clinical instruction in these subjects.

The systematic course in paediatrics, like that in medicine, is illustrated by clinical cases. The teaching of paediatrics is also linked with that of preventive medicine.

Social Medicine and Preventive Medicine.

Social medicine, so far as the approach from the point of view of the individual patient is concerned, is taught as an integral part of systematic medicine and clinical medicine. However, that aspect of the subject which deals with social organizations and social factors in general concerned in the aetiology of diseases is dealt with in the courses of

preventive medicine and pædiatrics, and arrangements are made for practical instruction in this field.

Clinical Instruction.

In the final year a refresher course is given in obstetrics, and students attend for brief periods some of the special clinics—for example, thoracic unit, tuberculosis clinics, diabetic clinic *et cetera*. Otherwise, clinical instruction is more or less along conventional lines.

THE UNIVERSITY OF ADELAIDE SCHOOL OF MEDICINE.

By A. A. ABBIE,

Dean of the Faculty of Medicine, University of Adelaide.

Introduction.

The University of Adelaide grew out of the Union College—a non-conformist theological seminary established by the Reverend Samuel Jefferis, LL.D., in 1872. After only a few months generous endowments enabled the college to change its status to that of a non-sectarian university. The *University Act* was passed by the State Government in 1874, but the Colonial Office did not grant Letters Patent until 1881. The delay was due to misgivings over the new university's insistence upon the admission of women on equal terms with men—that is contained in the *Degrees Act* of 1880. Meanwhile, academic work started with the admission of eight matriculated students in 1876.

The appointment of Dr. Edward Stirling as lecturer in physiology in 1881 foreshadowed the beginning of a medical school. Then a chair of chemistry was founded, and in 1884 Archibald Watson was appointed Elder Professor of Anatomy. Thus were provided the requirements for a pre-clinical school, and this was recognized in 1885 by the General Medical Council of Great Britain and Ireland. The first medical students were enrolled in that year and, arrangements having been made for clinical teaching meanwhile, they graduated in 1889.

Since that time, except for a break from 1896 to 1903, the numbers of students graduating annually increased steadily until the outbreak of World War II. By that time the annual number of admissions to the medical course was around the thirty mark. From 1945, however, the increase rapidly rose to a figure over four times the pre-war intake. Some of this increase can be attributed to returned servicemen and to those whose ambitions had been temporarily frustrated by the war. However, it is becoming evident that these are not the major elements in the increase, because, although most of those affected by the war have now passed on, the number of students has not dropped to anywhere near the pre-war level—or even to a level proportional to the subsequent increase in general population. Annual admissions now seem to be fluctuating around the eighty mark—nearly three times the pre-war figure—and this appears to reflect a general trend towards medicine, not only in Australia, but throughout the world.

After the war it became clear to the University Council that the existing teaching facilities were hopelessly inadequate. The council wisely set its face against temporary structures and embarked upon an ambitious building programme which included a medical school. This building was begun in 1947. The Anatomy Department moved in at the beginning of 1949 and the Departments of Physiology and Pathology during 1950, although the first building phase was not completed until 1951. At present the building houses only the three departments mentioned, together with the Medical Library, Post-Graduate Committee in Medicine, two major lecture theatres, students' and attendants' accommodation, caretaker's residence, X-ray department, workshop, mortuary and animal house. When completion of the building becomes possible it will comprise seven storeys each of from 15,000 to 16,000 square

feet. The extra space will provide for the Department of Bacteriology, some of the clinical departments, and better amenities for the students. The Medical School is conveniently placed in close proximity to both the University and the Royal Adelaide Hospital.

The Medical Course.

Admission.

Admission is subject to attainment of the requisite matriculation standard, usually gained at the leaving certificate examination.¹ The present requirements for medicine are five subjects, including English and one other language, mathematics I (or its equivalent at the intermediate examination) and physics (if not already passed at the intermediate examination). With a few minor qualifications the entrance standard of most other British-type medical schools is accepted as equivalent.

At present all qualified candidates from South Australian schools, or of mainly South Australian affinities, are admitted without restriction. In addition, this university admits qualified Western Australian candidates. Candidates from States which possess a medical school, from Tasmania and New Zealand, are admitted only if they have some special claim.

New Australians resident in South Australia may be admitted. They must pass a standard test in English and their maturity certificate must include a good pass in English as a major subject. If they have no maturity certificate they must conform to South Australian matriculation requirements. Status is granted according to the academic standard attained in their own medical schools. With very few exceptions, those who have done some of the medical course but have not graduated are admitted to second year only; those who have graduated are, after passing an examination in anatomy and physiology, admitted to the fourth year of the course.

The Medical School, further, reserves ten vacancies *per annum* for qualified overseas candidates, giving preference to those with a British Commonwealth background. There are a few from the United States and some from Great Britain, but the majority come from the British Dominions in south-east Asia.

Until the end of 1952 the medical course as a whole will follow what has been the traditional pattern of such courses, namely, three terms pre-medical, five terms pre-clinical, and ten terms clinical work, making six years in all. The course as it stands is outlined below. But this arrangement is now considered unsatisfactory and modifications to be introduced in 1953 are described later.

The Present Course.

First Year (Three Terms).—The first year meets the standard requirements in chemistry, physics, zoology and botany, the subjects being taught for the most part with an eye to future medical application. The first examination (equivalent to first M.B.) covers these subjects and must be passed as a whole.

Second and Third Years (Five Terms).—During the second and third years the student is taught anatomy, biochemistry and physiology. Anatomy extends over the full five terms, biochemistry over the first three terms, and physiology over the last four terms. Biochemistry is especially adapted to medical needs; in anatomy there is special emphasis on embryology and histology during the first three terms; a particular feature of the physiology course is the individual work in mammalian physiology.

The second examination is in biochemistry and in embryology and histology; the third examination is in anatomy and physiology. These two examinations are equivalent to the second M.B. of the General Medical Council, but the second year examination must be passed as a whole before the student can enter upon the work of the third year.

During the third term of third year the student enters the hospital, where he receives preliminary instruction in pathology and bacteriology, and applied physiology and

¹ These entrance requirements are at present under review.

pharmacology, and he is introduced to the clinical work of the next three years.

Fourth, Fifth and Sixth Years.—The work in the medical sciences, as well as in medicine, surgery, obstetrics, gynaecology, paediatrics and the specialties, extends over the whole period. There is no special annual demarcation according to subjects, but, in general, the special subjects come towards the end of the period and an effort is made to keep as much as possible of sixth year free of formal courses to allow the student the maximum time for clinical work in the wards.

The hospitals available for teaching purposes are the Royal Adelaide, Adelaide Children's, Queen Victoria Maternity, Parkside Mental, and Northfield Infectious Diseases Hospitals.

reasonably well in the remainder, may be granted a supplementary examination in that subject.

Degrees normally conferred at graduation are Bachelor of Medicine and Bachelor of Surgery (M.B., B.S.). For subsequent work the University may confer the degrees of Doctor of Medicine (for which a thesis is compulsory) and Master of Surgery (by examination in two parts). Other degrees available in the medical course are Bachelor of Medical Science (B.Med.Sc.), which is open to any medical student who has attained a sufficient standard in his first two years and is prepared to devote an extra year to one of the basic medical sciences, and the B.Sc. (Hons.) in anatomy, which requires two extra years' work in the anatomical sciences. Further, any approved medical graduate may submit a thesis for the degree of



The Medical School, University of Adelaide, July, 1952, showing provision for future expansion.

During the fifth year an interim clinical examination is held. It is not a qualifying examination and failure to pass does not prevent a student from proceeding with the course.

The fourth examination is held at the end of fifth year and covers (a) pathology and bacteriology; (b) applied physiology and pharmacology; (c) practical pharmacy, pharmaceutical *materia medica* and posology; (d) public health and preventive medicine, and forensic medicine. The examination must be passed as a whole before the student proceeds to the sixth year.

The fifth examination (final M.B.) is held at the end of the sixth year, and comprises: (i) the principles and practice of medicine, including medical diseases of children and psychological medicine; (ii) the science and art of surgery, including surgical diseases of children and diseases of the eye, ear, nose and throat; (iii) obstetrics and gynaecology. In this examination particular importance is attached to the practical work. The examination must be passed as a whole.

While each examination must be passed as a whole, a student who has failed in one subject only and has done

Master of Science (M.Sc.) and so open the way to the degrees of Doctor of Philosophy (Ph.D.) and Doctor of Science (D.Sc.).

Comment.

The course, as set out above, differs in no essentials from the traditional British pattern—the pattern which is now giving rise to so much general dissatisfaction. Consequently, the Medical Curriculum Committee has been working for some years upon modifications which will eliminate some of the unsatisfactory features yet still meet General Medical Council requirements. Factors taken into account in the modification are as follows:

1. The break from the pre-clinical to the clinical part of the course is altogether too abrupt. The student passes suddenly from an academic environment to a busy, hospital life, where practical application is the keynote, and he learns new subjects under conditions which minimize any possibility of relating them to the work of the first three years.

2. The present medical course is a compromise between the necessity for instilling as much scientific knowledge

and outlook as possible on the one hand, and the natural desire of clinicians to turn out competent medical practitioners on the other. In the outcome we fall between two stools and fail to achieve more than moderate success in either respect.

Future Course.

In an effort to meet these difficulties it is proposed, from 1952 on, to extend the third year work by a term to the end of the academic year. The extra time so gained will be occupied thus:

1. Instruction in general pathology will begin in second term; during third term a course in surface, surgical and radiological anatomy will be given to parallel the course in applied physiology; students will attend the hospital for elementary training in clinical work during second and third terms.

It is hoped that these changes will break down the psychological barrier between the pre-clinical and clinical schools; that students will have an opportunity to see the immediate applications of their pre-clinical work; and that morbid histology will follow on smoothly from normal histology instead of suffering the devastating year's break which now intervenes. Far more important, perhaps, than any of these material gains is the fact that the student will come into contact with living people earlier—while he is still engaged upon what a number regard as the "dead" part of the course. There seems little doubt that this association should quicken his interest in the pre-clinical work.

2. The second problem is rather more difficult. The scientific content of the work is continually expanding, but the course cannot be lengthened materially to accommodate the extra work. Nevertheless, the general standard of medical practice cannot improve unless it takes cognizance of scientific advances. Even a fairly ruthless pruning of detail—to be left for subsequent post-graduate training—can achieve only limited success. It would seem that, with increasing insistence upon compulsory post-graduate residence before full qualification, the proper procedure is to expand the scientific work of the clinical years at the expense of the practical application, leaving this for the year's post-graduate residency.

This solution assumes greater importance when it is appreciated that for the vast majority the university course offers medical people their only opportunity for acquiring any scientific background, while they have the whole of the rest of their lives to perfect their practical skill. This suggestion does not mean that the wards must be neglected for the laboratories. The wards are the laboratories for training and research in the scientific aspects of medicine and surgery and their ancillaries. What is suggested here is that in the education of medical students the wards should be used primarily as laboratories, not just as places for treatment.

It is obviously difficult to foster this attitude where there are no purely academic teachers on the clinical side. With every will in the world an honorary and/or part-time clinical teacher lacks the time to keep his knowledge up to date, to integrate the teaching as a whole and to undertake, foster and supervise research. Moreover, his own choice of career, albeit unconsciously, inevitably introduces an applied bias into his methods and ideas in teaching. The only real solution to this problem is the appointment of full-time, or mainly full-time, heads of clinical departments whose backgrounds and interests are primarily academic and scientific. There are many excellent clinical teachers of practical medicine, but if the student's outlook is to be kept abreast of ideas and not obscured by detail, the academic side must be accorded much stronger representation than it enjoys at present.

As a partial approach towards this ideal the University of Adelaide has established a chair of medicine which it expects to fill this year. The professorial appointment is designed to supplement, not supplant, the present clinical teaching units. It is hoped that the professor will organize and integrate the Department of Medicine as a whole, will provide such systematic teaching as is necessary, and will

take care of the laboratory and research side of his subject. He will have a largely full-time staff with whose help he will maintain a full teaching clinical unit of beds to run in parallel with similar units controlled by his honorary colleagues. It is hoped that this arrangement will provide the scientific side of medicine with greater support than at present, while striking a reasonable balance with the practice of medicine.

Post-Graduate Training.

The Post-Graduate Committee in Medicine is, in Adelaide, a University body. The University is properly concerned only with academic and scientific standards which it recognizes by awarding appropriate degrees. Purely professional standards, attested by corresponding diplomas, are not a university affair and the University of Adelaide does not provide for such diplomas through its Post-Graduate Committee. However, it usually happens that the University provides the best or only facilities for training for post-graduate diplomas. Consequently there are regular courses of instruction for the M.R.A.C.P. and F.R.A.C.S. examinations; courses for other diplomas are given as the occasion demands.

The proper function of the Post-Graduate Committee is more fully exercised in its efforts to raise the general standards of medical practice in keeping with scientific advancement. To that end regular post-graduate sessions are held in the metropolitan hospitals, and teaching teams give courses in country centres. In addition, every effort is made to collaborate with other post-graduate committees in attracting eminent overseas scientists and teachers.

The Post-Graduate Committee is supported mainly from university resources. It has its own chairman and works independently of, but in harmony with, the Faculty of Medicine. Since 1945 the committee's scope and importance have been considerably enhanced, and the question of according the committee still greater autonomy is under consideration. The object is to foster an increasing awareness of the value of post-graduate teaching, and to stimulate an expanding demand for it. There is little doubt that at present only a limited number of medical practitioners are taking advantage of the facilities available.

Ultimately it is hoped that by developing both the undergraduate and the post-graduate schools to their optimum, yet preserving a reasonable balance between the two, Adelaide will be able to offer a well-rounded, but progressive, system of medical education.

Acknowledgement.

For some of the historical material in this paper I am indebted to an article by Mr. P. M. Last (*Adelaide Medical Students' Society Review*, 1949, Number 3, page 7).

MEDICAL EDUCATION IN THE UNIVERSITY OF QUEENSLAND.

By E. S. MEYERS,

Dean of the Faculty of Medicine, University of Queensland.

THE Editor has requested me to write an article on medical education in Queensland, setting out the general aims of the curriculum, and an account of the way in which each subject is taught especially in relation to other subjects; furthermore, I am to deal with things as they are, rather than as I would desire them; but this latter condition is not absolute. In my preparation of this article, I acknowledge the help gained from "A Critical Review of Undergraduate Medical Training" (1946) and from a study of the Medical Handbook of the Faculty.

Education is a life-long process and, as was said by Litvinoff of peace, "is indivisible". Medical education may be considered to be a special branch of education and is also a life-long process, or at any rate, one extending

over a very long period. The true student of medicine has always something more to learn, or modifies impressions as the result of later experience.

The Beginning of Formal Medical Education.

Apart from the time when medical students took the first year of science in the newly formed University of Queensland in 1911, before completing their medical education elsewhere, formal medical education in Queensland leading to a degree commenced in 1936.

In 1942 the University of Queensland undertook the duty of providing in addition post-graduate medical education.

The Senate, the Faculty and the Post-Graduate Medical Education Committee.

The Senate of the University of Queensland is the body responsible to the Government for providing undergraduate and post-graduate medical education in Queensland. It is composed of 25 members, 15 of whom are nominees of the Government; the President of the Professorial Board is an ex-officio member, and nine members are elected by graduates of three or more years' standing.

The Senate is responsible for the control of the faculty, subject to the statutory control of the Government of the day.

The Faculty of Medicine is appointed by the Senate and in addition to the various professors and lecturers it includes other members, such as the Director-General of Health, the Chairman of the Hospitals Board, representatives of the Mater Misericordiae Hospital management, and the General Medical Superintendent of the Brisbane and South Coast Hospitals Board—there being 28 members in all.

The chief duties of the Faculty of Medicine are to report to the Senate on all matters having relation to the studies, lectures, examinations, exemptions, degrees and other matters solely pertaining to the Faculty, to secure the efficiency of the whole of the teaching of the Faculty, and to make such recommendations to the Senate as seem necessary to obtain that efficiency.

The Post-Graduate Medical Education Committee of the University of Queensland, which is also appointed by the Senate, has three representatives on the Faculty of Medicine, and most of the other bodies interested in medical teaching, such as hospitals, are also represented. The functions of this committee are to arrange for the teaching for higher degrees and diplomas, refresher courses for medical practitioners throughout the State and lectures by distinguished practitioners from abroad, and to hold an annual course of a week's instruction each year in Brisbane.

Teaching Provisions.

Teaching in the Faculty of Medicine is carried on in the early years of the course in the various departments of the University in their lecture rooms and laboratories, and in the later years in the hospitals of the Brisbane and South Coast Hospitals Board, and the Mater Misericordiae Hospitals; the Commonwealth, State and Municipal Departments of Health are used for the study of subjects coming under the heading of social medicine.

At the present moment the University is very scattered as the building scheme for a new university at St. Lucia commenced in 1937 is by no means completed. Owing to the outbreak of war the University was used by the Australian Army, and since then building restrictions have seriously interfered with the completion of the plans. However, quite a number of buildings have been completed on the University site at St. Lucia.

First year medical students take their chemistry there, anatomy is taken at Victoria Park, Herston, physiology is taught in a building near the original University, in William Street, and the departments of zoology, botany and physics are all situated on the original site of the University. Pathology, bacteriology, social and tropical

medicine and certain of the clinical subjects are housed in the Medical School at Herston, which is the main centre of teaching in the last three years of the course. The scattered location of the various buildings is a very unfortunate circumstance, as students waste much time in travelling.

The Senate of the University, although having statutory responsibility for providing a sound education for medical students, not only has no hospitals under its control, but there is no member of the Senate on the Brisbane and South Coast Hospitals Board. The Senate has no representative on the Advisory Board of the Mater Hospital management. The Advisory Board of the Brisbane and South Coast Hospitals Board was abolished over ten years ago.

The arrangements for teaching of students in the hospitals are governed by the *Hospitals Act* of 1944 which empowers hospitals to set up clinical schools for medical and other students. Up to the present time no new regulations have been provided to make for the smoother working of arrangements for medical teaching, but it is hoped that a Board of Clinical Studies will be appointed in each hospital that will be responsible for attending to the day-to-day details required for the efficient working of the clinical schools.

However, in spite of all handicaps some 500 graduates have completed the medical course in the first twelve years since degrees were first granted and they have played their part both in war and peace.

The standard of graduates is well up to those of other universities, as is seen by the fact that there have already been two Hallett Prize winners from Queensland in the primary examinations for the Royal College of Surgeons. In addition quite a number are on the staff of various medical schools and on research institutions not only in Australia but abroad. Queensland graduates are scattered throughout the States and there are quite a number on the staff of the Faculty of Medicine and in the Commonwealth and State Health Departments.

The present curriculum is based on "A Critical Review of Undergraduate Medical Training" undertaken by a committee of the Faculty in 1942 and completed some three years later. The findings of this committee were approved by the Faculty and by the Senate.

The chief aims of the curriculum are stated to be "to enable graduates to practise Medicine and Surgery skilfully and to enable graduates to practise general medicine and surgery with intelligence, initiative and judgement. Additional aims are to impart a balanced education, to preserve the health of students and to train students for citizenship".

Certain recommendations were made as to the responsibility of the staff, the chief of which was to make the facts available to students in a convenient form, to train students in judgement on facts and to train them in the application of theory. Every effort was to be made to avoid teaching subjects in watertight compartments and each part of the course was to have a relation to the succeeding part.

The Importance to Medical Students of a Sound General Education.

For quite a number of years there has been much criticism of the poor general education of medical students. The present matriculation consists of passes at senior standard in chemistry, physics and mathematics and two other subjects. If one of these subjects is not a language, a language at junior standard will suffice. In consequence students have not the sound general education that formed the background of students of forty years ago. The Faculty was mindful of this criticism and considered it quite fair.

It is well to remember what Sir Francis Fraser, of the Post-Graduate Medical School in London, has written quite recently:

Medicine was one of the earliest subjects to be taught in Universities long before the pre-clinical sciences as we know them existed, as at that time University students in Medicine studied the Humanities as a background to an Apprenticeship to a hospital and private practice and Medicine deserved to be included with the learned professions of the Church and the Law.

In 1942 the Faculty, in reviewing the curriculum, recommended that students should have

a broad education so necessary to the art of living today. The system should not be hard and fast, but should depend upon individual educability and aptitude to a large extent. Matriculation should be taken in two parts, (i) general, and (ii—twelve months later) scientific, when the subjects should be Biology, Physics and Chemistry.

Since the times of forty years ago, when the period of secondary education was five years, to the older disciplines there has been added an immense amount of scientific knowledge. Also there are the so-called social sciences calling for attention. During this long period of time secondary education in Queensland has occupied four years only, and teachers in these secondary schools and University are completely dissatisfied with this arrangement and are of the opinion that the period should be extended to five or even six years.

In consequence of these circumstances the Faculty of Medicine has been unable to introduce a satisfactory matriculation, and this has had a marked effect in the plans for a new curriculum as will be seen later.

The Senate has now taken the matter up and the whole question is *sub judice* for the moment.

It may be opportune here to quote the words of Sir Farquhar Buzzard, as he has admirably set out the aims of the curriculum which are to

gain for the student an understanding of Man as a living animal, the principles governing his heredity and reproduction, his growth and nutrition and development and the forces underlying his mental and physical activities and his environment.

The Curriculum.

First Year.

In the first year chemistry, physics, zoology, botany and anatomy and introductory physiology are studied. All students except those who engage in university sport are required to take the physical education course conducted by the Department of Physical Education.

The chemistry course includes the rounding off of the work required for the matriculation examination, and the introduction of modern ideas in the treatment of chemistry as a whole based on the accepted view of atomic structure and electron theory; a short specific course in the chemistry of proteins, carbohydrates and fats, and an introductory course of physical chemistry dealing with the properties of gases, solutions *et cetera*. Practical courses illustrate the lecture courses, and an elementary course in volumetric analysis has been included. General experiments of a quantitative nature have been introduced with special reference to the needs of the medical student.

In physics the fundamental and general relationships with common physical phenomena receive attention. It embraces a considerable portion of experimental physics, but from a general and descriptive rather than a detailed and strictly logical point of view. Particular attention is devoted to the study of physical phenomena having a direct bearing on the physiological functions. The course includes a section dealing with the application of radiation to medical treatment. The practical course comprises experiments illustrating the subjects dealt with in the lecture.

In zoology the subject matter comprises the treatment of the cell and its structure and environment, histology and organ systems, the anatomy and elementary physiology of the rabbit, a survey of the animal kingdom, parasites, study in animal population, embryology, genetics and evolution.

In botany attention is devoted to the form and function of green flowering plants, the typical cell and its modifica-

tion for main division of labour, the structure of plants with special reference to the physiology, nutrition, and food transport and storage, the principal plant groups, symbiosis, parasitism, nitrogen and carbon economy, hormones and enzymes.

In the first term anatomy commences with histology of the tissues and in the second it goes on to the study of the systems and selected organs, histology of the skin, alimentary system, teeth, liver *et cetera*.

Towards the end of the first year the thorax is dissected and lectures are given on the anatomy of the region.

Physiology commences in the second term and deals with the study of protoplasm, principles of absorption and internal environment, metabolism, respiration, excretion and excitability.

At the end of the first year the examination takes place.

The Second Year.

In the second year anatomy and physiology are studied intensively and care is taken to see that there is as much correlation as possible between the two subjects.

In this year there is a course of lectures and demonstrations and practical work, including dissections given throughout the year. The course includes systematic, regional and applied developmental microscopic anatomy and neurology. Practical work including dissections correlated with the lectures is given throughout the year (fifteen hours per week).

Physiology and biochemistry occupy two lectures and two practical classes per week, and one lecture and one practical class per week are given over to biochemistry.

As already stated, this year is somewhat overloaded, and there is not sufficient balance with the anatomy and physiology in first year. It is hoped that with the coming of the new matriculation much more time will be available for these subjects in the first and second years.

The examination is held at the end of the year.

The Third Year.

In the third year physiology and biochemistry continue particularly in their applied aspects. Included in this study, theoretical and practical pharmacology receive attention in the first and second terms.

The third year also is the year in which pathology is taken, the course lasting about 400 hours, and extending throughout the year. There are lectures, demonstrations, seminars and practical classes, designed to survey the basic principles of general pathology, special pathology and clinical pathology. The relation between the anatomical function and the chemical aspects of these processes is illustrated by clinico-pathological conferences in which the students play a major role. About 200 autopsies are done by students each year and they prepare the histological material from these autopsies. The course is continued in the fifth year in the wards of the hospitals as clinical pathology and is studied under the direction of the Department of Pathology.

The object of the course in pathology is to lay the foundation of knowledge of disease processes on which the superstructure of clinical instruction can be built. To inculcate the habit of critical analysis of data, to indicate the principles underlying the maintenance, modification or ultimate disruption of the integration of bodily structures, functions and disease is the aim of the course.

In this year also students receive instruction in medical bacteriology. The course comprises 49 lectures and 72 hours of practical class demonstrations. This includes general bacteriology dealing with such subjects as morphology, staining, culture, methods of sterilization and disinfection, immunology including the general principles of immunology, serology, allergy, systematic lectures on bacteriology and mycology including bacteria, rickettsia, spirochaetes, viruses and fungi, application of bacteriology in medicine, including specimen taking, investigation and diagnosis, biotherapy, chemotherapy and bacteriology in relation to public health. During the third year the

students get their first introduction to patients in applied physiology, subjects discussed being dyspnoea, circulatory disturbances, pain *et cetera*.

Throughout the year students are given classes in tutorial medicine, tutorial surgery and tutorial psychiatry, instruction including case taking, signs and symptoms and the various matters usually dealt with from the tutorial point of view. This work forms an excellent introduction to the hospital work of the fourth and subsequent years.

In the fourth year there are two terms of medicine, one term of surgery and one term of special surgery.

In the fifth year there is one term of medicine, one term of surgery, one term of obstetrics and gynaecology, and one term of paediatrics. Each student undertakes ward work in rotation in each of these subjects. There are systematic lectures in all of these subjects.

During the terms when students are in the medical wards they act as clinical clerks, and discuss their patients



The Medical School, University of Queensland.

In the third year also students are given their introductory lectures on *materia medica*, and the various drugs in common use in practice are dealt with. This instruction is reinforced in the later years by the clinicians, all of whom give instruction in the various wards and out-patient departments of the hospitals.

At the end of the third year the examination is held in pathology, bacteriology and clinical physiology.

The Fourth and Fifth Years.

In the fourth and fifth years students receive theoretical and practical instruction in medicine, surgery, obstetrics and gynaecology, paediatrics and social and tropical medicine.

For the purpose of their ward work this period is divided into eight terms of nine weeks each: four in the fourth year and four in the fifth year.

with the clinician in charge of the patient with reference to diagnosis, prognosis, treatment and pharmaceutical and therapeutical action of drugs. They are expected to attend all autopsies on patients and perform all requisite clinical routine pathological work in the students' laboratory which is situated in the hospital. In addition students attend a weekly clinical demonstration in medicine given by the clinicians in turn. They also receive instruction both theoretical and practical in infectious diseases.

In surgery, in addition to attending the wards they attend the out-patients and operating theatres, and once a week at a fixed time there is a demonstration in clinical surgery given by the various clinicians, and the professor takes each group in turn for intensive training in a different surgical subject each week.

Two clinico-pathological conferences are held each term when the professors concerned and all the students attend.

There are a number of lectures and laboratory work that have to be fitted into this course, and the aim is to arrange as many as possible of these early in the fourth and fifth years so that the clinical work of the students will be interrupted as little as possible in the last eighteen months of the course.

During the fourth year instruction in surgical anatomy and operative surgery takes place by means of a practical course of three hours' duration once a week for three terms.

Students are given the opportunity of revising their anatomy, thus extending the anatomical studies into the later years of the course. In addition the students are taught the various surgical procedures that they have to undertake in general practice; they also see the actual performance of them in the operating theatres.

Surgical pathology is taught for twenty hours in the first and second terms of fifth year.

In special surgery students receive practical and theoretical instruction in orthopaedics, urology, and eye and ear, nose and throat surgery.

They receive a course of six lectures in dentistry, giving particular attention to the subjects of borderline medicine and dentistry. This course is given by the Professor of Dentistry and his associates.

In the fourth and fifth years students have theoretical and practical instruction in social and tropical medicine. There are a series of lectures on various aspects of the subject and 27 two-hour periods of practical work. Instruction is given in preventive and community services, maternity and child welfare, child guidance clinics, school medical services, rehabilitation *et cetera*.

In the fifth year the students receive instruction in forensic medicine for one term.

In this year also students receive lectures in clinical physiology given by a clinician and lectures on the history of medicine.

A new feature of the course is that selected students go to the Territory of Papua and New Guinea during their long vacation between the fourth and fifth years, and whilst there are employed as assistants to the medical officers.

In the fifth year there is a short lecture course on physical medicine and physical therapy with demonstrations, and at the end of the fourth and beginning of the fifth year students are instructed in the principles and practice of obstetrics and gynaecology.

During the fifth year each student spends two weeks in residence at the Women's Hospital and they receive practical instruction in obstetrics and clinical obstetrics, ante-natal instruction and attendance at the ante-natal clinic, attendance at the septic clinic, lectures and demonstrations in manipulative obstetrics, diseases of the newborn, mothercraft and infant feeding, obstetrical pathology and radiology. In gynaecology students attend the wards and out-patients, being under the administrative control of the Professor of Obstetrics, the clinical instruction being in the hands of a special lecturer.

It was noted that case-taking in psychiatry takes place in the third year. In the fourth and fifth years the student goes on with the study of this subject (in the Department of Medicine), and the instruction consists of one hourly lecture or demonstration each week during the first three terms of the fourth year and one hourly demonstration weekly during each of the terms of the fifth year. This course is used primarily to demonstrate common psychological conditions and the psychological reactions associated with physical disease.

At the end of the fourth year an examination is held in social and tropical medicine, and at the end of the first term in fifth year, in forensic medicine.

At the end of the fifth year examinations are held in medicine, surgery, paediatrics and obstetrics and gynaecology. In this examination questions are devoted to the theoretical aspects of the subjects, basic principles and the applications of anatomy, physiology and pathology to conditions as they apply to the various subjects.

The Sixth Year.

The sixth year is almost completely devoted to hospital instruction and for half of the time the students are in residence.

It was Osler who said that "to study the phenomena of disease without books is to sail an uncharted sea; while the study of books without patients is not to go to sea at all". In this year students are able to pursue their studies in the Oslerian tradition.

The term "apprentice residents" has been applied to these students, and two or three students are attached to each visiting medical officer. The patients whom they see are for the most part selected, and during the term that they are in residence they have the opportunity of seeing and taking part in the treatment of all emergencies.

Once again the term is divided into four periods of nine weeks each given over to medicine, surgery, obstetrics and gynaecology and paediatrics. The practical work is undertaken daily in the wards in psychiatry. During this period, too, students receive special demonstrations in dermatology for a term, and they are also required to attend three demonstrations in the psychoses at the Brisbane Mental Hospital. Instruction in anaesthesia is arranged by the Department of Surgery, each student spending one week in the practice of anaesthesia working under the immediate direction of the medical officer in charge at one or other of the hospitals.

It is hoped that in addition to the abovementioned work students will spend a fortnight attached to a general practitioner. Already some students have benefited by this type of experience arranged by the University of Queensland Medical Society.

At the end of this year students take an examination in each division and their knowledge is tested by oral and practical methods. In addition the work done throughout the year is taken into consideration in assessing the results.

On completion of the examination the successful candidates are admitted to the degrees of M.B., B.S.

Research.

In the earlier years of the Faculty the Department of Physiology and Biochemistry published much original research work, notably on the effects of heat on man and animals, not only under civil conditions but also under conditions of war. It is interesting to note that Professor D. H. K. Lee, who was responsible for this research, is now Professor of Physiological Climatology at the Johns Hopkins Hospital, while Dr. Macpherson (one of Queensland's graduates), who assisted him, has been engaged in research at Singapore, and is now at a research institute at Hammersmith.

Post-Graduate Medical Education of the Young Graduate.

The important subject of post-graduate medical education of the young graduate has not received the attention it deserves, and unfortunately the University has no control of any hospital.

Dr. Robert Morison, Associate Director of Medical Sciences of the Rockefeller Foundation, who spent a week here a few years ago inquiring into medical education and post-graduate medical education, informed us that in the United States of America undergraduate and post-graduate medical education went on concurrently in most of the hospitals in that country.

Certainly students "learn by doing" during their period in hospital, and up to the present there have been very few young graduates who have not done one year or more in one or other of the Queensland hospitals. However, these hospitals primarily concern themselves with the treatment of patients, and any educational work is just incidental. Until the hospitals realize that they (in conjunction with the University) have another very essential task to perform this state of affairs will continue.

Conclusion.

Professor C. E. Dolman, who conducted a survey of medical education in Canada and the United States, was of the opinion that a "Faculty of Medicine which does not have its own Hospital is as deficient as a Faculty of Agriculture would be without an Experimental Farm". In his opinion, "the whole of the Medical School should be located on the campus of the University as the only satisfactory means of ensuring the desired physical continuity between medical sciences and the clinical departments within the Faculty of Medicine and also between the Faculty of Medicine and other Faculties of the University . . .".

One final word as to the proper place where medical teaching should take place is aptly put by Sir Francis Fraser, who has written: "If there were no other reason than the need for cultivated judgement it would still be proper for the whole of the medical curriculum to be the responsibility of the Universities. Trotter's third constituent, namely, 'a sound cultivated judgment', makes it imperative, for clinical science can be fostered and developed only within the resources of the University."

Wilfred Trotter, a noted philosopher and surgeon, in his address on "Has the Intellect a Function?", describes three methods of learning which overlap each other. There is the method of practical art, the method of natural sciences, and the method of philosophy. Those of us who can look back on forty years of medical education can call to mind men and women who have succeeded in life by devoting themselves to one or other of these methods.

Already one is able to think of young Queensland medical graduates who are destined to follow in the footsteps of other distinguished Australians who have preceded them.

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POST-GRADUATE MEDICAL EDUCATION IN AUSTRALIA.

By V. M. COPPLESON,

Honorary Secretary of the Australian Postgraduate Federation in Medicine and Honorary Director of the Post-Graduate Committee in Medicine in the University of Sydney.

In Australia the term "post-graduate" in relation to medical education is used to indicate generally all types of medical education after graduation. Gradually, as in other parts of the world, better definition of the various types of this form of education is emerging, and distinctions are being drawn between intern or first-year training, graduate education, registrar training for specialists and general practitioner training, whilst the term "post-graduate" medical education is becoming limited to the meaning of education provided for the practising doctor.

The organizations interested in these various types of post-graduate education include universities, medical colleges, British, Australian and Australasian, various specialist organizations and the Branches and local associations of the British Medical Association. Degrees and diplomas are granted by the universities and the colleges.

Most of the organization of post-graduate medical education in Australia is undertaken by six State post-graduate committees. Three of these, The Post-Graduate Committee

in Medicine in the University of Sydney, The Postgraduate Committee in Medicine of the University of Adelaide, and The Postgraduate Medical Education Committee of the University of Queensland, are university committees. Three are subcommittees of the local Branches of the British Medical Association; these are The Melbourne Permanent Post-graduate Committee, The Postgraduate Committee British Medical Association, Western Australian Branch, and The Tasmanian Postgraduate Committee in Medicine.

Although each enjoys complete autonomy within its own State, these six committees are linked together in the Australian Postgraduate Federation in Medicine, which was founded in 1947. The chief objective of the Federation is to further post-graduate medical education in Australia and to coordinate the work of the various State committees. It is particularly interested in arrangements for overseas visitors. The Postgraduate Committee in Medicine of the University of Otago, New Zealand, the Federal Council of the British Medical Association, and the Australian Regional Council of the Royal College of Obstetricians and Gynaecologists are honorary members of the Federation. The President of the Federation is Professor Edward Ford, Dean of the Faculty of Medicine in the University of Sydney.

The Melbourne Permanent Post-graduate Committee.

The activities of the Melbourne Permanent Post-graduate Committee are concerned in the main with three objects:

- (i) To provide means whereby those engaged in general practice may obtain the views of acknowledged leaders and teachers on the more important aspects of their work.
- (ii) To facilitate the work of those graduates desirous of pursuing higher study in medicine and surgery and the special branches thereof.
- (iii) To enable the recent advances in treatment and practice to be presented to the profession by means of lecturers of special merit drawn from overseas or from local sources.

Arrangements.

With this in view the committee makes the following arrangements:

1. *Annual Short-term Courses.*—The annual short-term courses are organized by a general and a special hospital acting in conjunction, so as to provide a revision in current medical practice as well as an expression of recent developments. In addition, a special gynaecology and obstetrics refresher course extending over two weeks has for a number of years been held annually at the Women's Hospital, Melbourne.

2. *Routine Teaching in the Ward and Out-patient Clinics of Teaching Hospitals.*—With the cooperation of the honorary staffs of teaching hospitals routine teaching is available for graduates. With due notice, the Melbourne Permanent Post-graduate Committee can arrange attendance at general or special clinics, singly or as a series, to meet individual needs. Information concerning visiting and operating days of members of the hospital staffs and daily operating lists are kept by the committee.

3. *Courses for Higher Study in Medicine and Surgery and Specialties.*—Courses for higher study are so designed as to provide the appropriate background for those sitting for higher degrees (M.D. and M.S.), and the various diplomas of the University of Melbourne and the examinations of the Royal Australasian Colleges.

4. *Country Courses.*—Throughout the year the Committee conducts, by request, courses at most of the main country centres in the State, in the form of week-end courses or of single evening sessions.

5. *Overseas Lecturers.*—As a member of the Australian Postgraduate Federation in Medicine, the Melbourne Committee participates in the visits of lecturers from overseas. Amongst such recent visiting lecturers have been Mr. Naunton Morgan, Dr. Paul Wood, Dr. William Pickles and Professor Charlest Best.

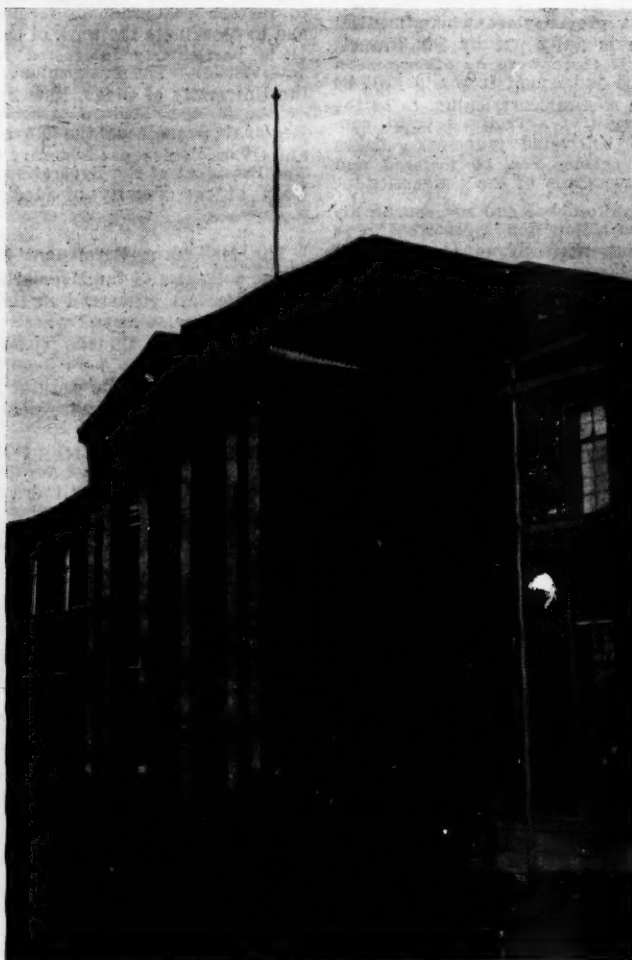
6. *Graduates Proceeding Overseas.*—A special feature is made of advice to those seeking higher degrees or work in

special fields or in general revision. In common with other members of the Australian Postgraduate Federation in Medicine, this committee has a close link with the British Postgraduate Federation in Medicine and its Director, Sir Francis Fraser. As this latter body is the coordinating authority for such work throughout Britain, the value of this liaison in regard to such matters as special courses of instruction and hospital work is very great. It is felt that those contemplating visits to the United Kingdom for such purposes should discuss their problems with the staff of the committee well ahead of their projected departure so that appropriate steps can be taken.

Syllabus.

A comprehensive syllabus for the ensuing twelve months is issued by the committee in the latter part of each year. In this will be found details of facilities available in Melbourne and Victorian country centres, together with notes on courses, fees payable, special lectures and meetings of interest, and a chronological summary in diary form of the activities dealt with in the syllabus.

The Committee was founded by the Victorian Branch of the British Medical Association in February, 1920, and comprises representatives of the following organizations:



The Royal Australasian College of Surgeons.

Fees.

Fees range from £15 15s. each in such courses as anatomy, physiology and pathology, to 10s. 6d. for individual lectures by overseas lecturers.

For those not undertaking regular courses but utilizing the resources of the committee in other ways, there is an enrolment fee of £1 1s. and a weekly charge of up to £2 2s. on a *pro rata* basis for hospital attendance.

Accommodation.

In view of the difficulties experienced by visitors, the committee endeavours to assist in securing accommodation if requested, though obviously its activities in this way must be on a strictly limited scale.

Royal Melbourne Hospital, Alfred Hospital, Saint Vincent's Hospital, Children's Hospital, Women's Hospital, Eye and Ear Hospital, Prince Henry's Hospital, British Medical Association (2), Faculty of Medicine (2), Royal Australasian College of Physicians, Royal Australian Navy, Army, Royal Australian Air Force, State Health Department, Department of Mental Hygiene, Repatriation Commission. In addition there are four members coopted for special reasons.

The Post-Graduate Committee in the University of Sydney.

The Post-Graduate Committee in Medicine in the University of Sydney provides the following facilities.

1. Training for prospective specialists, supplementing the work of the Faculty of Medicine, and the holding of courses and tutorials for degrees and the medical diplomas of the university.

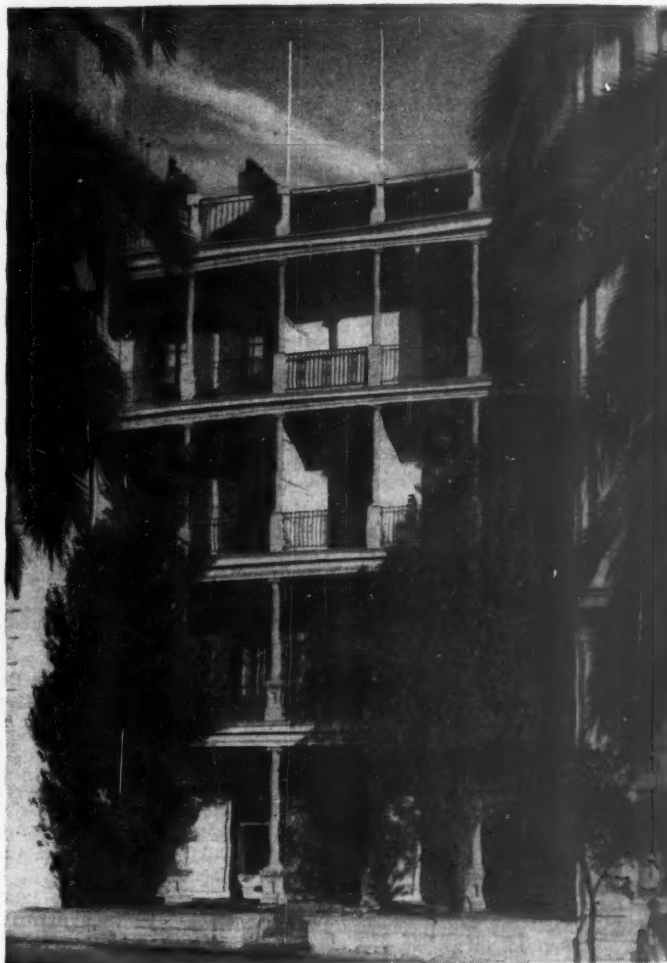
Courses are held each year in conjunction with the university departments and the teaching hospitals for Parts I and II of diplomas in the following subjects: anaesthesia, clinical pathology, dermatological medicine, diagnostic radiology, gynaecology and obstetrics, laryngology and oto-rhinology, ophthalmology, psychological medicine, therapeutic radiology.

tute of Cardiology, the Royal Prince Alfred Hospital Reunion Week, the Sydney Committee of the Royal College of Obstetricians and Gynaecologists, and other bodies.

Country Courses: Country courses are held each year in the following centres: Albury, Bathurst, Bega, Broken Hill, Katoomba, Kempsey, Lismore, Newcastle, Orange, Parramatta, Taree, Wagga Wagga, Wollongong.

3. Provision for residence at obstetric and other hospitals.

4. A research post-graduate travelling fellowship which is awarded from time to time.



The Royal Australasian College of Physicians.

Advanced courses in medicine, basic sciences, surgery and radiology, suitable for the examinations of the Australasian Colleges, are also held.

2. Revision for practising specialists and general practitioners by courses in Sydney and country districts.

Courses in Sydney: An annual general revision course is held, the next course to begin on April 20, 1953. Other courses are an annual subscription course, consisting mainly of lectures by overseas visitors and of film showings, a course in endocrinology, a course in electrocardiography, a course in mycology, a course in rheumatic diseases, a course in obstetrics at the Women's Hospital, Crown Street, and courses in conjunction with other bodies, which include the yearly course in conjunction with the Hallstrom Insti-

5. The maintenance of a bureau for the making of arrangements for post-graduate study and work abroad. With the assistance of the British Postgraduate Federation arrangements are made for a considerable number of young graduates to undertake post-graduate work in the United Kingdom or to be enrolled in diploma courses. Arrangements are also made for young graduates to obtain positions as interns, resident medical officers and Fellows in United States hospitals and clinics.

6. Maintenance of a film collection and facilities for lending. One hundred and sixty-nine films are held by the committee. These are distributed widely throughout Australia and the South-West Pacific. The committee has produced a number of films and is at present engaged on the

production of a film on "The Care of the Premature Baby", which is sponsored by Nicholas Proprietary, Limited.

7. The publication of a monthly *Bulletin* of lectures given under the auspices of the committee.

8. Maintenance of a library limited to reference books.

9. A visual aids and photographic department.

The committee is composed of the following representatives: the Chancellor, the Deputy-Chancellor, the Vice-Chancellor of the University of Sydney and the Dean of the Faculty of Medicine, *ex officio*; a representative of the Faculty of Medicine, two representatives of the New South Wales Branch of the British Medical Association, three representatives of the teaching staff of the committee, nine hospital representatives, a chairman and an honorary director, all of whom are appointed by the Senate of the University, and four co-opted members.

The University of Queensland Postgraduate Medical Education Committee.

Country Tours.

The Queensland Postgraduate Committee considers that an important part of its work is to carry post-graduate instruction to country practitioners in all parts of the State, and especially to young graduates serving their first year in country hospitals. For this reason more than half the committee's expenditure is devoted to sending lecturers to the following country centres: Bundaberg, Bowen, Cairns, Charleville, Gayndah, Gladstone, Gympie, Innisfail, Ipswich, Mackay, Maryborough, Rockhampton, South Burnett, South Coast, Toowoomba, Townsville, Warwick, and during 1950-1951 forty-nine such visits were made.

Lectures and Demonstrations.

Visitors from other States and overseas usually lecture in Brisbane, owing to the time involved in travelling to other centres, but on occasion it has been possible to arrange lectures in the nearer country towns.

Wire Recorder.

To enable country doctors to receive the benefit of these visits, the committee maintains a wire recorder and recordings of these lectures, and copies of slides are sent to any country centre requiring them.

A Journal.

The Queensland Postgraduate Medical Journal, distributed free to all registered medical practitioners in Queensland and published twice yearly, contains one selected lecture by an overseas visitor, one contributed article, one by a Queensland post-graduate lecturer, and if possible an interesting case report taken from a clinical meeting. (Publication of this journal has been suspended during 1952 as an economy measure.)

Courses.

Each June a general revision course lasting one week is held in Brisbane, and during the year courses in anatomy, physiology, bacteriology, pathology and advanced medicine are held if sufficient applications are received. Courses can also be arranged, as required, in preparation for D.O. (Queensland), D.P.M. (Queensland), and the diplomas of radiotherapy and diagnostic radiology.

For country practitioners requiring refresher courses in obstetrics, residence at the Brisbane Women's Hospital can be arranged.

Sponsorship.

The committee provides, through the director, advice and assistance to those planning post-graduate study abroad.

The Postgraduate Committee in Medicine, University of Adelaide.

The Postgraduate Committee in Medicine, University of Adelaide, provides the following facilities.

1. Specialist training. Courses in preparation for higher degrees and diplomas are held each year, provided there are sufficient applicants. Special courses are arranged on request. Courses include: M.R.A.C.P., full-time, June to

August, fee £31 10s.; F.R.A.C.S. I, part-time, July to September, fee £31 10s.; F.R.A.C.S. II, part-time, as requested; M.R.C.O.G., part-time, as requested.

2. Visits by eminent overseas lecturers who lecture to specialists and general practitioners and take part in the work of the hospital and university departments.

3. Refresher training for general practitioners. Refresher week is held annually, usually in the August university vacation. For practitioners in the metropolitan area weekly surgical and medical ward rounds are conducted at the Royal Adelaide Hospital at 4.30 p.m. on Tuesday and Wednesday afternoons continuously from February to October. On application to the committee, graduates may attend the routine practice of the Royal Adelaide Hospital, both in the wards and special departments. Country week-end courses are arranged each year in the mid-northern area, Murray River, and south-east.

4. Scholarships to the value of £500, to be awarded for 1953-1955, and for 1956-1958, to enable a medical graduate, whose war disability has prevented him from engaging in general practice, to receive training in some special branch of medicine or surgery.

5. A film library, consisting at present of 22 films, with facilities for lending.

6. Information on courses, assistance with arrangements and sponsorship for post-graduate training abroad.

7. The services of the medical secretary, who is available by appointment for advice and assistance on any aspect of post-graduate study in Australia or overseas.

The Postgraduate Committee (Western Australia).

The Postgraduate Committee (Western Australia) provides the following facilities:

1. An annual course of lectures in medicine suitable for candidates for M.B. and M.R.A.C.P. examinations.

2. Week-end country lectures which are held each year in the following centres: Northam, Bunbury and Katanning.

3. Annual post-graduate week in September each year. There are generally two visiting lecturers, who give approximately ten lectures and clinical demonstration.

4. Medical library.

5. The making of arrangements and the giving of advice on post-graduate study abroad.

The Tasmanian Postgraduate Committee in Medicine.

The Tasmanian Postgraduate Committee in Medicine provides the following facilities:

1. A coordination centre for all medical post-graduate activities in the island.

2. A correlation between post-graduate functions on the mainland and in Tasmania.

3. Arrangements for overseas lecturers whose time is divided equally between Hobart and Launceston as the two centres of focus.

4. A close association with local branches of the three Royal Colleges, who hold annual clinical meetings with guest lecturers from mainland teaching cities.

5. British Medical Association clinical and clinicopathological meetings, chiefly for general practitioners, in Hobart and Launceston.

6. Arrangements for men travelling abroad for post-graduate studies.

Acknowledgements.

I am indebted to the following for the description of the activities of the various State committees: Dr. W. W. S. Johnston (director), The Melbourne Permanent Postgraduate Committee; Dr. David Jackson (director of postgraduate studies), Postgraduate Medical Education Committee, University of Queensland, Dr. J. M. Bonnin (medical secretary), Postgraduate Committee in Medicine, University of Adelaide; Dr. E. R. Beech (honorary secretary), Postgraduate Committee, British Medical Association, Western Australian Branch; Dr. W. W. Wilson (honorary secretary), Tasmanian Postgraduate Committee in Medicine.

The Medical Journal of Australia

SATURDAY, NOVEMBER 15, 1952.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: surname of author, initials of author, year, full title of article, name of journal without abbreviation, volume, number of first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

THE EDUCATION NUMBER.

MANY years have passed since an education number of this journal was published. During the interval the Second World War has been fought and many changes have taken place in the world of medicine. Some of these are the result of the social changes which were speeded up by the war, and some have arisen from additions to medical knowledge; to a certain extent these have interacted. But, regardless of change, an increasing number of young men and women take up the study of medicine, and the process of evolution in medical education goes on. Perhaps evolution is not quite the right word to use. Medical education must change because changes such as those already mentioned as having recently occurred are continually taking place. These changes are studied and statements and reports of their bearing on medical education by interested persons or groups of persons appear from time to time. If one feature in a medical curriculum becomes outmoded someone always has something to put in its place; the outmoded stage is not always apparent, because the people who "have something" may be influential enough to forestall it. These people find scope for their activities when a medical school or groups of them overhaul their curricula. In this way medical education is evolved. Many do not know and some will have forgotten that in 1920 the Editor of this journal invited certain practitioners in Sydney to form a committee and draw up a report on medical education; the report was published in the Education Number of 1920. Those who signed the report were Archie Aspinall, H. G. Chapman, J. L. McKelvey, Harold J. Ritchie, F. P. Sandes and S. A. Smith. The report was sent to the deans of the three Australian medical schools (Queensland then had no school); but the recommendations

were too far-reaching to meet with approval. Many of them have since been carried out. The Editor's committee had the advantage of being composed of younger men—a fact that might well be remembered in any future inquiries into education in this country. An education number of this journal gives to those specially interested in medical education and to members of the profession an opportunity to note the changes that have taken place in the curricula and also the conditions offering in the several public services. This is one of the purposes of an education number. Another purpose is that information is set out for the guidance of the parents and guardians of intending students and of the students themselves. Young graduates may also obtain help when the day of graduation has passed and they are faced with the task of earning a living. The decision will depend on two factors—inclination and aptitude. Financial considerations are not a matter of such concern to the young graduate of today as they were to the junior graduate earlier in this century. The salaries paid for junior positions are much higher than they used to be and there are many more openings. Fellowships, too, are available for those who wish to follow a special line of study; these at present are not numerous enough, and both universities and teaching hospitals will have to recognize this if they are to build up the first-class staffs of younger men which they need. Financial worries will not assail the juniors if they are content to hasten slowly and do not try, as is said of some of them, to start where their elders have left off—with all the accessories, conveniences and trappings acquired after a lifetime of professional toil. But we must return to inclination and aptitude; of the two the latter is the more important. It is of little use to be inclined towards one particular branch if one is not fitted for it—if the aptitude is not there. If a choice has to be made, the chooser should at least know what avenues are open to him. Not so long ago a young medical graduate of an Australian university, who did not think he was suited for private practice, was asked about research. He was vague about this, and on being questioned further, he did not recognize the name of a well-known graduate of his own university who had made outstanding contributions to medical knowledge by original research. This young man had to have his feet all but placed on the pathway that he later followed. When a graduate has discovered the direction in which his abilities lie and he finds the prospect congenial, he should allow nothing to stand in his way. He should remember, in so doing, that what seems the longest way round is sometimes the best in the long run. Professor Ward's views on the value to the clinician of a period of apprenticeship at a bench in a research laboratory are here most significant. Whatever happens, it is important that the few graduates with really first-class minds should be used in the right way. This should be partly the responsibility of the deans of medical schools. The deans should look among their senior students for promising youths, and once such persons have been found they should not be allowed to be unshepherded until their futures are determined. The intellectual leaders of medicine readily recognize endowment in others similar to their own. "H.J.S." wrote recently in *The Times* of the late Hugh Cairns that his capacity for leadership was equalled by his generosity and that he took the trouble to create opportunities for

any man or woman of promise. This, the true spirit of science, will doubtless find its counterpart among the leaders at Australian centres of learning.

In this discussion so far we have taken it for granted that students enter on a medical career with the full knowledge that the profession of medicine is an honourable one and that it is built on a tradition of service to humanity, that it is partly a science and partly an art, and that he is judged worthy who practises both for the benefit of his patients. If any man enters the ranks of medicine from mercenary motives, thinking that he can make an easy living relying on the credulity of his patients, or that he can lead a life of comfort in an academic arm-chair without making any effort to add to the knowledge of his subject, or even that he can hold down a nine-to-five job in an official department and not bestir himself unduly, it would be better for such a man to discard medicine. He has ideals which are incompatible with those of traditional medicine. He may gain temporary advantage or satisfaction, but at the end of life he will find it hollow—what he regarded as the substance will prove to be nothing but the shadow. To those who feel her call, medicine has been described as the most captivating and irresistible of all mistresses. She has to be won and she will give full communion only to those who woo her with selfless and wholehearted devotion.

One aspect remains to be mentioned. This education number has been discussed as it concerns the student and the young graduate. It has a message for those who make appointments to university medical schools and teaching hospitals. In his "Comments" Professor Ward says to universities: "Pick good young men and back them with everything you have." He bids hospital boards, in selecting men to join hospital staffs, give preference to those who have undertaken some serious investigational work. Without any shadow of doubt he is right in his statement that higher professional qualifications alone will not raise Australian work to world standard. What Australians need to do, whether they are young or old, whether they are seeking appointments or making them, is to cultivate a true sense of values.

THE BRITISH MEDICAL ASSOCIATION.

THE new graduate in medicine soon realizes that if he is to make any real progress in his knowledge of medicine, he must be able to discuss his problems with those who have difficulties similar to his own. He soon learns that no two medical problems are quite alike and that the reading of medical text-books and journals is not alone able to meet his ever-increasing needs. It is a commonplace among non-medical people that doctors always talk "shop" when they get together, and this is understandable. The desire for discussion starts in the students' common room, continues in the "residents'" quarters, and in the nature of things must go on throughout the whole of professional life. In Australia, as in Great Britain, the British Medical Association provides the practitioner with the opportunity that he needs. In Australia membership of the Association is sought by the majority of recent graduates, and it is in order to make that majority still larger that reference is made to the subject in this place.

The British Medical Association was founded more than one hundred and ten years ago in Worcester, England, by Charles Hastings. Its ramifications are now world-wide, and Branches or affiliated associations are to be found in every country of the British Commonwealth of Nations. Its objects, which should be impressed on every non-member and of which every member should be reminded, are two in number—the promotion of the medical and allied sciences and the maintenance of the honour and dignity of the medical profession. The order in which these objects are placed is important. The promotion of the medical and allied sciences must always remain the chief object of the Association, for there is no doubt that if its members ever reach the stage at which they think more of their own welfare than of the progress of medical knowledge and the welfare of their patients, the Association will surely degenerate and become ineffective. Membership of the British Medical Association has many advantages to offer to the practitioner. The opportunity for discussion with other practitioners has been mentioned. There is a Branch of the Association in every State, and these Branches hold regular meetings at which papers are presented and discussed and clinical demonstrations are made. Sometimes these demonstrations are held at hospitals and the patients are shown. If proper use of these opportunities is made the value to the practitioner can be considerable. In addition, members of the Branches are given any help that they require in their search of medical literature by the officers in charge of Branch libraries. All Australian members of the British Medical Association receive each week in virtue of their membership the *British Medical Journal* and *THE MEDICAL JOURNAL OF AUSTRALIA*. To these scientific advantages must be added every two or three years eligibility for membership of the Australasian Medical Congress, which provides a mental stimulus attainable in no other way. On the non-scientific side the member of the British Medical Association receives advice and guidance on ethical matters when he needs it. His practice may have to do with hospitals or with the provisions of the *Workers' Compensation Act*, or with government departments, or with other statutory bodies; in these circumstances he will never appeal in vain to his Branch for such advice and assistance as he may require.

Some of the advantages likely to be gained by the young graduate if he joins the British Medical Association have been stated. It should be pointed out that the Branches have arrangements by which undergraduate medical students may become associate members. As such they pay no subscription, are allowed to attend scientific meetings of the Branch and receive *THE MEDICAL JOURNAL OF AUSTRALIA* for a nominal sum. This is a happy arrangement, for it introduces the student to the atmosphere of the Association at an early age and makes it more than likely that he will continue his membership when he has qualified. The young men and women of today become the prominent figures and the leaders of tomorrow. Most young people would desire to have the esteem of their fellow practitioners, and they are the more likely to gain this if they follow the ethical tradition of their profession as members with their fellows of the same professional association, keeping its rules and endeavouring to further its aims.

Royal Australasian College of Surgeons.

FOUNDED in 1927, the Royal Australasian College of Surgeons has carried out a vigorous policy of post-graduate education in surgery in Australasia. Admission to Fellowship of the College is by a two-part examination. The primary examination includes anatomy and applied physiology and the principles of pathology, and the final examination may be taken in general surgery, orthopaedics, gynaecology and operative obstetrics, urology, ophthalmology and laryngology. In addition to passing the primary examination a candidate for the final examination must complete a course of surgical training approved by the Censor-in-Chief before receiving permission to present himself for the final examination.

The primary examination is reciprocal with the primary examinations for Fellowship of the Royal College of Surgeons of England, the Royal College of Surgeons of Edinburgh, the Royal College of Surgeons in Ireland, and the Royal Faculty of Physicians and Surgeons of Glasgow.

In addition the following are the principal activities of the College in the field of post-graduate surgical education in Australasia:

1. *The Australian and New Zealand Journal of Surgery* is published under the auspices of the College.
2. The Gordon Craig Library is housed at the College headquarters in Melbourne, and from this library a service is rendered to all Fellows of the College and to all Fellows and Members of The Royal Australasian College of Physicians throughout Australasia.
3. The College conducts a general scientific meeting annually. These meetings are held in the various States in Australia and in the Dominion of New Zealand.
4. The State and Dominion Committees of the College organize and conduct a series of scientific meetings throughout the year in their respective States in Australia and in the Dominion of New Zealand.
5. Each alternate year the Sims Commonwealth Professor visits Australasia and carries out a programme of educational work under the auspices of the College.
6. In 1946, after the cessation of hostilities, the College began the award of Gordon Craig Scholarships. These awards were made primarily to assist graduates, whose post-graduate study in surgery had been interrupted by their war service, to complete their post-graduate education. In all, forty-two scholarships have been awarded, the total value of scholarships awarded being £17,917 13s. 10d.
7. The following educational orations and lectures are conducted by the College throughout Australasia: (a) The George Adlington Syme Memorial Oration, (b) The Hamilton Russell Memorial Lecture, (c) The Rupert Downes Memorial Lecture, (d) The Archibald Watson Memorial Lecture, (e) The Herbert Moran Memorial Lecture.
8. Recently Fellows of the College established a fund to found a prize essay in memory of the late Sir Alan Newton. The essay will be known as the Alan Newton Prize Essay and the first award will be made early in 1955.
9. The College conducts annual examinations for the Michael and J. P. Ryan Scholarships in Surgery.

The Royal Australasian College of Physicians.

THE objects of The Royal Australasian College of Physicians are to promote the study of the science and art of medicine, to encourage research in clinical science and the institutes of medicine, to bring together physicians for their common benefit and for scientific discussions and clinical demonstrations, and to disseminate knowledge of the principles and practice of medicine by such means as may be thought fit.

Honorary Fellowship of the College (Hon. F.R.A.C.P.) may be granted by the Council to persons of eminence whether or not holding a registrable medical qualification who have rendered exceptional services to the science or practice of medicine, provided that no physician practising in the Commonwealth or Dominion shall be eligible for Honorary Fellowship.

The Fellowship of the College (F.R.A.C.P.) is gained by election from Membership. A Member of at least four years'

standing and who has, in the opinion of Council, satisfactorily distinguished himself in the practice of medicine or in the pursuit of medical sciences or literature may be nominated for election by the general body of Fellows. Those practitioners who have sufficiently distinguished themselves in any branch of medical science or internal medicine may also be elected to Fellowship by the general body of Fellows.

Membership of the College (M.R.A.C.P.) is gained by examination which consists of: (a) a paper or papers on the principles and practice of medicine, including pathology, therapeutics and the history of medicine; (b) an oral examination which may include the clinical examination of patients, together with the identification of naked-eye and microscopic specimens and such other tests of a candidate's knowledge which bear on the subject of internal medicine or any of the allied sciences.

The examination in Australia is held twice yearly in or about the months of April-May and September-October. Further information concerning the examination may be obtained upon application to the Honorary Secretary of the College at 145 Macquarie Street, Sydney. There is a provision by which graduates in medicine who are engaged solely in medical research and laboratory medicine may, under special circumstances, be admitted to Membership without examination.

Fellowships and Scholarships.

Wunderly Travelling Scholarships in Thoracic Disease.—The Wunderly Scholarships are for the post-graduate study abroad of thoracic disease and are awarded annually. The value of each scholarship is £A1000.

Travelling Scholarship in Medicine or the Allied Sciences.—The Travelling Scholarship is for the post-graduate study abroad of medicine or the allied sciences, and the annual value is £A1200.

Joseph Thornton Tweddle Research Scholarship.—The Joseph Thornton Tweddle Research Scholarship is for the purpose of encouraging medical research and has an annual value of approximately £120.

The Margaret Ryan Scholarship in Medicine.—The Margaret Ryan Scholarship is to promote the study of the practical application of the principles of medicine amongst the medical students at Saint Vincent's Hospital, Melbourne, and is tenable by the graduands of that hospital. The annual value is £75 to £100.

T. F. Ryan Scholarship in Medicine.—The T. F. Ryan Scholarship in Medicine is to promote the study of the practical application of the principles of medicine amongst the medical students at the Royal Melbourne Hospital, Melbourne, and is tenable by the graduands of that hospital. The annual value is £75 to £100.

General Research Fund.—The College makes available from time to time from its General Research Fund grants for research work. Applications are considered by the Research Advisory Committee and grants are made by the Council on the recommendation of that committee.

The Regional Council in Australia of the Royal College of Obstetricians and Gynaecologists.

THE Royal College of Obstetricians and Gynaecologists has a Regional Council in Australia, the headquarters of which are at 9 Victoria Street, Melbourne.

The present office-bearers are: *Chairman*, F. A. Maguire; *Vice-Chairman*, B. H. Swift; *Honorary Treasurer*, Bruce T. Mayes; *Honorary Secretary*, Leslie W. Gleadell.

Local State activities are controlled by State committees, each having a chairman, honorary treasurer and honorary secretary.

The Australian Regional Council meets at least twice a year and conducts scientific meetings every two years. Each State committee conducts two scientific meetings a year. Admission to these meetings is restricted to Fellows and Members. Membership is by examination. Examinations are conducted in London each January and July. Candidates must have fulfilled the following requirements: six months' resident medical appointment, six months' resident surgical appointment, twelve months' resident appointment in obstetrics and twelve months' resident appointment in gynaecology recognized for this examination in the appropriate

departments of hospitals. Candidates must submit a book of case records and commentaries.

Fellows are elected by Council from amongst the Members.

College of Radiologists (Aust. and N.Z.).

Activities.

The following are the activities of the College of Radiologists (Aust. & N.Z.).

1. To promote, encourage and provide for the advancement of the study of the science known as radiology, for carrying out research and experimental work and to improve the practice of radiology.
2. To conduct examinations and to grant to registered medical practitioners diplomas in cooperation with teaching bodies (in our case the Post-Graduate Committee in Medicine in the University of Sydney), the College to be examining body only by means of a board of examiners comprising radiologists, a member from each of The Royal Australasian College of Physicians and the Royal Australasian College of Surgeons and the Medical School of the University in which the examination may be held.
3. To promote or oppose any legislative or other measures affecting any matters connected with radiology as may be deemed expedient.
4. To hold general conferences and discussions for consultation amongst members and others.
5. To make, institute and establish grants, awards or other benefactions in connexion with the pursuit of study, research and advancement of radiology.

Examinations.

At present the Post-Graduate Committees in Sydney and Melbourne conduct the diploma examinations in diagnostic and therapeutic radiology and the examiners are appointed by the universities. The College hopes to hold examinations in 1953. Applications are at present obtained from the post-graduate committee in each State. The course is twelve months. Candidates must be of at least two years' standing, of which one year must be spent in a resident hospital appointment. The examination is in two parts.

General.

The Röntgen Oration is delivered each year at the annual meeting by a radiologist, medical specialist or scientist.

The Thomas Baker Memorial Fellowship (value £A1500) is awarded each year to a radiologist. The tenure of the Fellowship is fifteen months. The purpose of this Fellowship is to allow a qualified radiologist holding a diploma in radiology and preferably a higher medical degree to study in the United Kingdom and other countries, and he shall furnish a report for circulation to Fellows and Members on his return and visit capital cities and lecture on his work abroad.

The College of Radiologists is affiliated with the British Institute of Radiology, London, and each member receives *The British Journal of Radiology*.

There is a close liaison with the Faculty of Radiologists, London, two members of which visited Australia in 1951 to hold examinations for the Fellowship of the Faculty. This is the first time these examinations have been held outside the United Kingdom.

No medical man can be elected a member of the College without a diploma or its equivalent of radiology.

There are a certain number of Associate Members, such as physicists, but they have no voting power.

The Public Health Services.

THE COMMONWEALTH DEPARTMENT OF HEALTH.¹

To present a complete picture of the range of services and the opportunities offering for a medical career in the health services administered by the Commonwealth Department of Health, it is necessary to emphasize first the general basis upon which any public health service functions. In contrast

¹ From information supplied by Dr. A. J. Metcalfe, Director-General of Health.

to private medical practice, which is a service to the individual, a public health service is primarily a community service and is concerned mainly with environmental and social health problems. Its functioning and administration are directed to these problems, and while their solution must eventually affect the individual, the approach remains impersonal and objective. The doctor in public health administration is not concerned with the personal relationships of private practice; in matters of health, individuals are to him members of a community.

Another important aspect of a service such as a public health service, depending for its functioning on professional as well as administrative officers, is the nature of its administrative machinery, which, if the machine is to work efficiently, must be understood by the professionally trained officers as well as by the administrators. In many situations the professional officer is also the administrator. At the same time there are, in both State and Commonwealth service, specialized fields of work where the professionally trained officer is as free of administrative responsibilities as he would be in private practice. This applies particularly where medical officers are employed in research or on the professional staffs of training institutions.

The Relation of Commonwealth and State Public Health Administrations.

It is important to realize that in Australia there are two distinct fields of operation in public health services, Federal and State. Each operates under separate legislation, which, generally speaking, is complementary, though State legislation varies from State to State. Of necessity, Commonwealth administration deals with functions such as the quarantine services, for which a national policy is desirable. State administration, on the other hand, is concerned with those traditional day-to-day public health services dealing directly with people living in communities, with services such as the control of water supplies, of food and drug standards, and of infectious diseases.

At the same time some public health services are conducted on a cooperative basis between Commonwealth and State authorities. For example, the tuberculosis arrangement operates in conjunction with State health departments, and the free milk for school children scheme is carried out through State education departments. The Commonwealth was responsible for the planning, and provides the finance for both these services, while the States are responsible for their administration.

The Field of Operation of Commonwealth Health Services.

Commonwealth health services had their origin in the Quarantine Service, which, before Federation, was administered separately by each State. Even before Federation the need for a national policy on quarantine had been felt, and conferences to this end had been held as early as 1884.

After Federation a Commonwealth Quarantine Service was set up in 1908 and absorbed the various State quarantine controls. At this time, too, in view of the special problems in Australia arising out of the incidence of tropical diseases in the northern areas of the continent, an Institute of Tropical Medicine to provide research facilities was established at Townsville in northern Queensland.

Out of these two services, quarantine and research, most of the major health activities now controlled by the Commonwealth Department of Health have developed.

Federation also brought with it wider responsibilities in the general public health field, and led to a consolidation of health and social welfare policies on a national basis. The Federal Constitution allowed the Commonwealth to enter certain fields of health administration, particularly in relation to social welfare. In recent years such legislation as *Hospital Benefits, Pharmaceutical Benefits, National Fitness and Tuberculosis Acts* have been passed and have further extended the administrative responsibilities of the Commonwealth Department of Health.

Under Federation the Commonwealth Government undertook certain territorial responsibilities, which included the establishment of the Australian Capital Territory and the administration of the Northern Territory. The routine public health services in these areas then became the responsibility of the Commonwealth Department of Health.

As a part of Commonwealth administration the Department of Health has been required to cooperate with other Commonwealth departments in the provision of health services to meet special situations and policies. In this way the Department undertook the establishment of Migrant Health

Services for the Department of Immigration, medical examination services for the Department of Social Services, and consultative services of many kinds for the armed forces during wartime.

Australia has played an active part in international conferences and discussions on health problems, first through the League of Nations, and now through the World Health Organization of United Nations. Representation at various conferences is arranged through the Commonwealth Department of Health, officers of the Department being nominated. The Department has also cooperated on a consultative basis with the South-West Pacific Commission in connexion with the Commission's advisory health programmes for the islands and territories of the South-West Pacific area.

An important body closely associated with the administration of public health in Australia is the National Health and Medical Research Council, which was set up in its present form by the Commonwealth in 1937.

The Administrative Pattern of the Commonwealth Health Services.

The over-all administration of the Commonwealth Health Services is directed from the Central Administration in Canberra, which includes, in addition to general administration, various specialized divisions, such as tropical hygiene, migration, national health (tuberculosis), nutrition research and the health services for the Australian Capital Territory and the Northern Territory. In addition, there are in Canberra various other divisions which do not carry medical staff but are under professional direction, such as Plant and Animal Quarantine Divisions, Pharmaceutical Benefits Section, and the Division of Nursing.

Outside Canberra the administration of the quarantine services is carried out through divisional offices under a deputy director in each capital city (senior medical officer in Tasmania).

Closely associated with these general administrative and quarantine services are the research, training and consultative services located at the Commonwealth Serum Laboratories and the X-ray and Radium Laboratories in Melbourne, the Nutrition Division in Canberra, the Acoustic Laboratories and the School of Public Health and Tropical Medicine and the Institute of Child Health in Sydney, and the health laboratories scattered throughout the country. All these establishments carry medical staff.

In addition there are a number of subsidiary services, such as the Bureau of Dental Standards, the Lady Gowrie Child Centres and the National Fitness Movement, which do not carry medical staff, but for the administration of which the Commonwealth Department of Health is responsible.

Activities of the Commonwealth Health Service which Employ Medical Personnel. *The Quarantine Service.*

The Australian Quarantine Service, generally considered one of the most efficient in the world, is operated under the *Quarantine Act* (1908-1949) and Regulations, and the *Quarantine (Air Navigation) Regulations* adopted in 1934 after the International Sanitary Convention for Aerial Navigation of 1933. The Act and Regulations provide for the quarantining of "any ship, boat, or other description of vessel or vehicle used in navigation by sea or air".

There are 39 Australian ports proclaimed as "the first ports of entry" for vessels from overseas. Full-time quarantine officers are stationed at major ports, and local practitioners serve on a part-time basis at the lesser ports. Ten ports are listed as "landing places" for aircraft arriving from overseas. Major quarantine stations are maintained at five ports, and minor stations at seven other ports, while the fifteen Commonwealth Health Laboratories, as a vital part of the Quarantine Service, are situated at strategic points round Australia.

Quarantine officers carrying out inspections of sea-going vessels and aircraft are fully qualified medical officers with special training in the diagnosis of quarantinable diseases. These officers are attached to the various State divisional offices, under the Deputy Director of Health in each State.

The School of Public Health and Tropical Medicine.

The School of Public Health and Tropical Medicine was established in 1930 by the Commonwealth Government under an agreement with the University of Sydney. As a result of its activities this institution has now become the recognized centre for training and research in preventive and tropical medicine. Its functions include teaching, consultation and

investigation in the field of public health, tropical medicine and hygiene, preventive medicine, and industrial hygiene, together with their ancillary sciences.

With the establishment of the School, the University of Sydney set up a Department of Preventive Medicine within the University Medical School; the Director of the School of Public Health was appointed the first Professor of Preventive Medicine in the University.

The School is divided into two major sections, dealing with public health and tropical medicine respectively; teaching is directed by the Professor of Preventive Medicine in the case of public health, and the Professor of Tropical Medicine in the case of tropical medicine. Departments of the ancillary sciences of parasitology (including helminthology and protozoology), entomology, pathology and bacteriology, chemistry and vital statistics serve both sections. In addition, a Chest Survey Unit and an Occupational Health Unit have been attached to the School.

A further important extension of training and research work with which the School is associated is that being carried on in the recently founded Institute of Child Health. As with other activities of the School, a close association has been established with the Medical School of the University, and the Director of the Institute is also the Professor of Child Health at the University. He is responsible for the organization of all university teaching in this important part of child health studies today.

The School provides specialist training for doctors studying for post-graduate diplomas of public health and of tropical medicine and hygiene of the University. Courses in preventive and social medicine are also provided for all fifth-year students. Other courses provided for university students include architectural hygiene, social hygiene, parasitology and medical entomology. The School provides specialist laboratory training for medical officers and biochemists of the Commonwealth Health Laboratory Service.

In the research field a wide series of investigations have been carried out both in the laboratory and in the field. These have been concerned particularly with health problems in many parts of Australia and the Pacific islands.

Under war conditions the services of the School are likely to be called upon, as during the last war, when the staff of the School played an important role in the detection and effective control of tropical disease among Australian armed forces serving in the tropics. Short courses of training in tropical medicine were provided for service personnel, and an information service was made available.

These widely varied services at present require a staff establishment of fourteen specialist medical officers. In addition, ten places are reserved for medical officers in training from the health laboratory staffs, making a total of twenty-four. There is also a specialist medical officer attached to the Acoustic Laboratory who, for purposes of administration, is on the establishment of the School. (These figures do not include biochemists and other workers.)

Commonwealth Health Laboratories.

Health laboratories were originally established by the Commonwealth as an essential part of the Quarantine Service. The first laboratories were therefore situated at ports of entry, but their purpose has now been extended to provide facilities for research into local health problems, and also for their use by local medical practitioners for laboratory investigation and diagnosis. As a result, laboratories are now situated at points all over the Commonwealth. At the present time there are fifteen laboratories, one each at Canberra, Darwin, Cairns, Townsville, Rockhampton, Toowoomba, Lismore, Wollongong, Tamworth, Albury, Berri, Launceston, Hobart, Port Pirie and Kalgoorlie.

The professional staff of a laboratory normally consists of a medical officer and a biochemist. Where health laboratories are located at ports, the medical officer carries out the duties of a quarantine officer for the port, and at most centres he acts as Commonwealth Medical Officer for the medical examination of applicants for the Commonwealth Public Service.

Before being appointed to a laboratory, medical officers are given specialist training at the School of Public Health and Tropical Medicine, and usually take the diploma course in tropical medicine and hygiene. Refresher courses extending over one month are also available after appointment; in addition, a consultant pathological service is available at the School for the use of all departmental laboratory medical officers.

Commonwealth Acoustic Laboratories.

The Commonwealth Acoustic Laboratories began as a research unit sponsored by the National Health and Medical Research Council, when, during the Second World War, certain problems, such as the effects on service personnel of

noise and blast, were referred to the Council for investigation. In addition there arose the further problem of the aural rehabilitation of ex-service personnel.

As a result of the extension of the laboratory's activities, it was decided in 1947 to transfer its control from the National Health and Research Council and to establish the Laboratory as a permanent activity of the Commonwealth Department of Health, to be known as the Commonwealth Acoustic Laboratories.

Branches have now been established in each of the capital cities, with facilities available for administering tests, and assisting in the aural rehabilitation of ex-service personnel referred by the Repatriation Commission. These services are also available to children of pre-school and school age who are referred by education departments and other authorities.

At the Central Laboratory in Sydney the work of the various State Branches is coordinated, technical staff is trained, research carried on and advice given on all kinds of acoustic equipment.

The Commonwealth Serum Laboratories.

The progress and expansion of the Commonwealth Serum Laboratories over the past thirty-five years has been one of the most important developments in the field of public health in Australia. In 1918 the total staff employed was 35. By 1951 it had increased to 750, grouped under 50 different public service classifications and including university graduates in medicine, veterinary science, science and engineering. The main laboratory buildings in Melbourne now cover an area of eight acres, and contain equipment valued at several million pounds. In addition, an experimental farm of 350 acres is conducted at Broadmeadows, a short distance from Melbourne.

This extensive organization developed from a small institution known as the Calf Lymph Depot, set up by the Commonwealth before the First World War for the manufacture of vaccines and other biological products. Prior to this, Australia had been dependent on supplies of these products from overseas.

The Laboratories now prepare some 4000 different biological products which are available not only to Australia but to New Zealand and the South-West Pacific areas, and to countries of the Middle and Far East.

In addition to the production of biological products, the Laboratories are playing an increasingly important part in the field of research, both original and applied.

The variety of activities thus developed in the field of production, research, scientific training, and public health practice demands a wide range of staff, including medical officers (for which there are eleven positions available), chemists, biochemists, physicists, botanists, bacteriologists, mycologists, engineers and skilled technicians of all kinds.

Commonwealth X-Ray and Radium Laboratory.

The Commonwealth X-Ray and Radium Laboratory is located in the University grounds, Melbourne, and was established at its present form in 1935 to extend the services of the original Commonwealth Radium Laboratory, the chief function of which had been the care of the Commonwealth radium supply on loan to hospitals throughout Australia.

In more recent years the activities of the Laboratory have been extended still further into the field of diagnostic radiology, particularly into the technical aspects of miniature radiography and its use in case-finding and antituberculosis programmes. Pilot investigations in this field in 1934 led to the introduction of miniature radiography into the medical examination of army recruits. The equipment used in this work was constructed to specifications developed by the staff of the Laboratory.

After these early experiments the specialist staff of the Laboratory continued its investigation into the various problems of miniature radiography on both the physical and medical sides, and has reported through the Standing Committee on X-rays of the National Health and Medical Research Council, on such matters as suitable X-ray equipment, technical standards and methods of reporting. This information has proved invaluable to State health authorities and has provided a basis for the setting of standards for the manufacture of X-ray equipment.

The Laboratory is now playing an important part in the use made in Australia of artificially produced radio-isotopes.

While most of the work at the Laboratory is done by highly trained technicians, the medical application of radiotherapy has of necessity to be in the hands of specially qualified medical personnel.

The Australian Institute of Anatomy—Nutrition Research.

The Australian Institute of Anatomy is administered by the Commonwealth Department of Health under a special Act originally introduced to provide for the housing of the collection of Australian fauna belonging to the first Director of the Institute, the late Sir Colin MacKenzie. In more recent years the Institute has been developed as a nutrition research centre concerning itself with problems of human nutrition, particularly those relating to the Australian people. It also investigates nutrition problems among the native inhabitants of the Australian dependencies in the Pacific. Medical officers working at the Institute are therefore frequently engaged in the conduct of diet and nutritional surveys.

Other institutions and organizations with which the Institute cooperates are the Institute of Child Health at the University of Sydney, the South Pacific Commission in its investigations into the feeding of native people, the Australian Bread Research Institute, and the School of Public Health and Tropical Medicine.

Health Services in the Australian Capital Territory.

In the Australian Capital Territory the Commonwealth Department of Health is responsible for the administration of general public health services, which include the registration of medical practitioners, nurses, dentists and pharmacists, the administration of legislation in respect of drugs, poisons *et cetera*, and the health inspection and supervision of water supplies, shops, eating houses and similar establishments. A permanent medical officer is attached to the Department in Canberra and is responsible for the administration of these services.

In addition, the medical inspection of school children is carried out by a permanent schools' medical officer, who is also responsible for the medical inspection of pre-school children attending school centres, and the medical supervision of infant welfare centres.

Health Services for the Northern Territory.

Prior to the war, the Department of Health was responsible for the medical services in the Northern Territory, but during the war the services took complete control of the Territory and civilians were evacuated. After hostilities had ceased, in 1946, the Commonwealth Department of Health resumed control of all the health services in the Northern Territory and undertook the development of the hospital and public health services with an aerial medical service.

The service includes the administration of fully equipped hospitals at the main centres, Darwin and Alice Springs, with smaller hospitals at Katherine and Tennant Creek, general public health administration, including a dental and school health service, the provision of a fully equipped pathological laboratory at Darwin, a leprosanarium, and quarantine control of all vessels and aircraft.

The Aerial Medical Service.—The Aerial Medical Service is one of the most important branches of the Territory service. From Darwin the service is operated by the Health Department with the cooperation of Trans-Australian Airways, who supply pilots and maintenance for departmentally owned planes. With Alice Springs as its headquarters, the Flying Doctor Service of Australia cooperates with the Department in supplying wireless and a contract plane service, while the Department supplies medical staffs, hospitals and nursing services. Through this service patients can be comfortably transported long distances to hospital and, if necessary, given medical care *en route* by a sister and a doctor. Alternatively, medical care can be taken to outlying stations and missions, which are generally in radio communication with Darwin or one of the other main centres, from where they can receive advice and instructions in cases of emergency. In one year (1950) approximately 97,000 miles were flown by the Territory Medical Service in answer to emergency calls for both white and native patients. To cover this vast area thirteen medical officers are employed. The headquarters of the service are at Darwin.

Medical Services for Natives.—The Northern Territory Health Service includes a medical service for the natives of the Territory. This particular service is one requiring not only specialized training, but also some knowledge of the sociological pattern of native peoples.

This service is operated in cooperation with officers and personnel of the Native Affairs Department of the Territory, Government missions, church missions and cattle stations. The service is free and involves treatment at the many missions and cattle stations scattered throughout the Territory, or in native wards of the Territory Hospitals at Darwin, Alice Springs, Katherine and Tennant Creek. Radio and the Aerial Medical Service are used as the chief means of getting medical care to natives in outlying areas.

The National Campaign against Tuberculosis.

Within the last few years the Commonwealth has joined forces with the States in the war against tuberculosis, and after conferences between Commonwealth and State health authorities it was decided to carry out a national campaign against the disease. The *Tuberculosis Act* was passed in 1948 and a Commonwealth-State agreement drawn up and signed by each State. This agreement, or Tuberculosis Arrangement, as it is called, is the charter for the national campaign, and under it the State authorities have agreed to promote the campaign, while the Commonwealth acts as the coordinating financial and advisory authority. Each State was requested to submit a plan, with estimated expenditure, to introduce legislation "for the effective carrying out of the said campaign", and to appoint a full-time director of tuberculosis to direct its State plan. This has now been done in each State and the campaign is in full swing. The Commonwealth has accepted responsibility for direct action within the territories under its control, for certain groups of migrants entering Australia, for entrants to the Commonwealth Public Service, for National Service trainees and similar groups, and for certain special groups associated with diagnostic work and research projects.

The central administration of the campaign is directed from the Division of Tuberculosis, within the Commonwealth Department of Health, Canberra. A director and an assistant director of tuberculosis are in charge, assisted by the necessary administrative and clerical staff.

Migrant Health Services.

The Commonwealth's post-war migration policy made necessary the setting up of medical services, not only for pre-migration examination of prospective migrants in their countries of embarkation, but also for medical supervision of migrants on arrival in Australia.

Since 1947 approximately 200,000 displaced persons have arrived in Australia under the International Refugee Organization Scheme. The aim of the medical service as originally set up within Australia was to check on pre-embarkation medical examinations, to discover infectious diseases, particularly tuberculosis in adults, and to discover illness among the children. In many cases epidemics and other forms of sickness developed during the voyage to Australia.

A permanent medical officer in charge of migrant health services is attached to the central administration at Canberra, and a number of medical officers, according to needs, are appointed at points of embarkation in Europe and to the various migrant holding camps situated throughout Australia.

Hospital and other medical facilities have been provided at reception or holding centres, to deal particularly with maternity cases and infectious diseases in children.

Medical staff for these centres presented a serious problem and had to be drawn from many sources. Medical practitioners from among the New Australians, qualified in their own countries, but not permitted to register in Australia until certain conditions were complied with, have been used as medical orderlies in many centres and have worked with Australian medical staff.

At June 30, 1951, there were 23 full-time and six part-time medical officers employed, with two consultants and 93 male and 587 female nursing orderlies, many of the latter being migrant medical practitioners. With the tapering off of large-scale migration under the International Refugee Organization, these staffs are decreasing, though medical officers are still being employed in the examination of migrants at various points of embarkation in Europe. These officers are appointed either from Australia or recruited abroad.

Allocation of Medical Staff.

From the foregoing description of its activities it can be seen that the Commonwealth Department of Health requires a medical staff whose qualifications are spread over many fields of medicine—clinical, laboratory, research, teaching and administration. For this reason employment in the Department offers a wide choice of career to medical graduates.

At the present time there are ninety-five permanent positions in the service open to qualified medical officers, with as many again of temporary posts.

The central administration at Canberra includes fourteen permanent medical officers, several of whom are in charge of particular administrative divisions, such as the Division of Tuberculosis, Tropical Hygiene, Migration and Nutrition.

Each State divisional office, including the Northern Territory, carries a deputy director (Tasmania, a senior medical

officer) and two or more medical officers, including those posted at health laboratories. In addition, one medical officer in each State is available for full-time Commonwealth work in connexion with Social Services medical examinations under arrangement with the Department of Social Services.

The largest individual staffs of permanent medical officers in the Department outside Canberra are employed at the School of Public Health and Tropical Medicine (25, including 10 medical officers doing health laboratory training), the New South Wales Divisional Office (11) and the Commonwealth Serum Laboratories (11).

The Commonwealth Serum Laboratories employ a director and three deputy directors in charge of production research, as well as three senior medical officers on production research, and four medical officers.

The staff of the School of Public Health and Tropical Medicine, with a director in charge, is allocated to the specialized teaching and research Departments of Bacteriology and Pathology (4), Preventive Medicine (1), Industrial Hygiene (1), Epidemiology (1), Health Laboratory Training Division (10), Institute of Child Health (2) and Acoustic Laboratory (1).

Salaries and Classifications.

Medical officers' posts are classified within the following three groups: (i) medical officers (temporary or permanent), (ii) senior medical officers grades I-III, and (iii) deputy directors and directors.

Medical Officers.—The salary range for temporary and permanent medical officers is £1124 to £1738, with a bar at £1614, which may be passed by examination or additional approved degrees or diplomas. Temporary medical officers at migration centres receive £1652, with higher rates for senior positions. Medical officers in the Northern Territory have a range from £1610 to £1798 plus a district allowance of £60-£150 per annum.

Senior Medical Officers and Directors.—Senior medical officers are graded I-III, with salary ranges as follows: grade I, £1676 to £1862; grade II, £1862 to £2048; grade III, £2234 to £2420. Pathologists and bacteriologists in charge of certain health laboratories may advance beyond £1738 on attainment of prescribed qualifications and subject to vacancies occurring.

There are several positions classified within grades I, II and III, in the central administration, Canberra, at the Commonwealth Serum Laboratories, Melbourne, and at the School of Public Health and Tropical Medicine, Sydney. The Chief Medical Officer at Australia House, London, is classified within the grade II range.

State Deputy Directors.—The head of each State division, with the title of Deputy Director of Health, has a special salary range of £2044 to £2234, as also has the Director of the Commonwealth Serum Laboratories—£2606 to £3106.

Special Classifications for Northern Territory.

Special posts and ranges for the Northern Territory are fixed as follows: chief medical officer, £2000 to £2500; medical superintendent, £1860 to £2048; specialist, £1923 to £2110; medical officer, £1610 to £1798.

Northern Territory posts carry a district allowance from £60 to £150 per annum, depending on location and status of the appointee.

All permanent appointments in the Commonwealth Health Service are made under the *Public Service Act*, with the usual provision for superannuation (up to £1014 per annum) on retirement, recreation and sick leave, and cost of living allowances.

NEW SOUTH WALES.¹

SINCE 1941 all medical services in New South Wales have been controlled by the Department of Public Health. Prior to that year the school medical services were under the Department of Education, whilst mental hospitals were a separate administration.

The medical staff comprises 176 medical officers and there are, in addition, 24 dental officers.

The various positions mentioned later offer considerable scope and opportunity for medical graduates, since they embrace public health administration, specialized branches

¹From information supplied by Dr. E. S. Morris, Director-General of Public Health and Inspector-General of Mental Hospitals.

of preventive medicine, and clinical work in different types of hospitals.

Public Health and Administration.

The medical services are administered by the Director-General of Public Health, who is also Inspector-General of Mental Hospitals.

The administrative officers include a deputy director-general of public health, a metropolitan medical officer of health, two assistant medical officers of health, and six medical officers. There is a medical officer of health for each country region of Hunter River, South Coast, Richmond-Tweed, Broken Hill, and Mitchell. (Headquarters are at Newcastle, Wollongong, Lismore, Broken Hill and Bathurst respectively.)

Selected medical officers are afforded opportunity to obtain the diploma of public health, for which the Department defrays all fees other than the graduation fee. The officer must give a bond to remain in the Department for three years subsequent to obtaining the diploma. Possession of this post-graduate qualification qualifies an officer for promotion beyond certain grades and for senior executive positions when such are available.

Divisions and Branches.

The Department has the following divisions and branches.

The Division of Maternal and Baby Welfare controls baby health centres, departmental pre-natal clinics, medical supervision of kindergartens and day nurseries in the metropolitan district, investigations directed to the prevention of maternal mortality *et cetera*. All medical officers in this division are women.

There is a director of tuberculosis, a deputy director and four medical officers. This Division is concerned with the control and prevention of tuberculosis, and embraces mass X-ray surveys, epidemiological investigations—Mantoux testing and subsequent inoculation of "negative reactors" with "B.C.G."—domiciliary medical supervision of sufferers, control of chest clinics and similar activities.

The officers of the Division of Social Hygiene comprise a director, a senior medical officer and two medical officers. The activities of this Division are directed towards the control and prevention of venereal diseases. Medical officers receive a very thorough training in the modern treatment of these diseases.

The Division of Pathological Laboratories has a director, an assistant director, a medical officer in charge of the serological branch, and three medical officers. This Division carries out all pathological, serological, bacteriological and biochemical investigations necessary for clinical and public health purposes. A special section deals with medico-legal investigations. A medical officer in this Division would have ample opportunity for a complete training in laboratory work.

In the Division of Industrial Hygiene there are a director and two medical officers. This Division investigates industrial health hazards from the preventive viewpoint and affords a medical officer ample opportunity for training and experience in this special field.

The Division of School Medical Services has a director, a deputy director, an assistant director and 32 medical officers. Four of the staff are psychiatrists who are each in charge of a child guidance clinic. One of the child guidance clinics is devoted exclusively to the work of the Child Welfare Department and the Children's Court. Two of the staff are oculists who work mainly in the western area of the State. Medical officers are selected from time to time for training in refraction and certain aspects of ophthalmology. Seven medical officers are engaged part time at the various teachers' colleges, where they lecture in hygiene and also carry out medical examinations of students during their training.

There is a government medical officer (Sydney), an assistant government medical officer, and a government medical officer (Newcastle). These officers are concerned primarily with carrying out medico-legal post-mortem examinations for a coroner. In this Division there is opportunity for suitable medical officers to receive a very complete and intensive training in medico-legal autopsies and forensic medicine generally.

There are several positions for medical officers in various branches—for example, Government Insurance Office (3), Social Welfare Services (1), Consultative Council for the Physically Handicapped (1), and the State Penitentiary, Long Bay (1).

There are three State hospitals and homes—Lidcombe, Liverpool and Newington; there are also Waterfall Sana-

torium and Randwick Auxiliary Hospital, the two last mentioned caring for tuberculosis patients. The State hospitals and homes have a wealth of clinical material which would be of inestimable value to a medical officer proceeding to a post-graduate qualification. The medical staff of these institutions comprises 25, consisting of five medical superintendents, four deputy medical superintendents, three senior medical officers and nine medical officers.

There are ten mental hospitals and there is one psychiatric clinic for voluntary patients (Broughton Hall, Leichhardt). The medical staffs attached to the various mental hospitals comprise a director of the Division, ten medical superintendents, seven deputy medical superintendents, four senior medical officers, 43 medical officers.

Salaries.

The salaries payable in respect of most of the positions enumerated are those determined by agreement between the Public Service Board and the Public Medical Officers' Association of New South Wales.

Directors of divisions, the Metropolitan Medical Officer of Health, and the Government Medical Officer of Sydney receive £2012 per annum.

Medical superintendents, first-class, receive £1962 per annum.

Medical superintendents, second-class, receive £1862 per annum.

Deputy directors of divisions, medical officers of health, and deputy medical superintendents receive £1762 per annum.

Assistant medical officers of health and assistant directors receive salaries varying from £1637 to £1662 per annum.

Senior medical officers receive £1587.

Medical officers commence at £1362 per annum, rising by annual increments of £50 to £1462. The possession of a post-graduate qualification, for instance, D.P.H., D.P.M. *et cetera*, or service on the third-year rate for three years, qualifies a medical officer to progress to £1512. The salaries mentioned are for males; women are paid on a somewhat lower rate.

There are a number of other senior positions not mentioned above, the salaries of which vary slightly from but approximate to those of corresponding status.

Post-Graduate Training.

Selected medical officers are afforded facilities for obtaining post-graduate qualifications, such as the M.R.A.C.P. or diploma of public health, but all medical officers in the Division of Mental Hygiene are not only afforded facilities for, but are expected to obtain, the diploma of psychiatric medicine, which is essential for promotion to senior executive positions.

Leave.

Medical officers in institutions are allowed two days' roster leave each week and four weeks' recreation leave per annum.

Medical officers not in resident positions in institutions are entitled to three weeks' recreation leave per annum.

Three months' extended leave accrues after fifteen years' service, an additional three months after a further period of five years, and thereafter at the rate of six months for twenty years' service (maximum, twelve months' leave).

VICTORIA.

VICTORIAN DEPARTMENT OF HEALTH.¹

WITHIN the Victorian Department of Health there are three main branches under the general supervision of the Chief Health Officer. They deal with: (a) general health, (b) tuberculosis, (c) child health.

For administrative convenience the General Health Branch is subdivided into: public health, venereal disease, industrial hygiene, poliomyelitis. The Child Health Branch is subdivided into: maternal and infant welfare, school medical sections.

The following is a *résumé* of the type of work done in these sections and the opportunities they offer to medical graduates.

Public Health.

For the purpose of health administration Victoria is divided into six health areas: one metropolitan area and five country areas.

¹From information supplied by Dr. Kevin Brennan, Chief Health Officer, Department of Health.

In each health area is a district health officer, who must be a medical practitioner holding a diploma of public health. This district health officer, acting under the direction of the Chief Health Officer, advises and assists the part-time medical officers of health of councils. His work is varied, consisting of epidemiology, investigation into the causation and prevention of infectious diseases, immunization, sanitation, and any matters affecting public health.

In addition to the normal district staff a pool of five medical officers exists. The object of this pool is to give the younger graduates an opportunity of gaining experience in public health. Whilst employed in this pool these graduates are given experience in all branches of the Department. Any who show a special inclination towards any particular phase of preventive medicine are assisted and encouraged; in particular, of those desiring to make public health a career, one each year is sent to the School of Public Health at the University of Sydney to carry out the study for the diploma of public health. When this is obtained such officers are eligible for promotion to senior vacancies as they arise. The salaries offered are comparable with those in other States.

Venereal Diseases.

The Government Venereal Diseases Clinic at Melbourne treats both male and female patients to a total of about 40% of reported cases. There is also a part-time branch clinic at Geelong.

The medical staff at Melbourne consists of two full-time and three part-time medical officers (all male). One part-time medical officer (male) is employed at Geelong. The part-time medical officers are salaried.

Particularly at the Melbourne clinic there are opportunities for observing and treating venereal diseases in a well-appointed clinic amply supplied with modern diagnostic and treatment facilities. A "round the clock" prophylactic service (males only) is also in operation. Facilities are available for medical practitioners to attend a series of clinic sessions to gain experience in slide diagnosis, urethral instrumentation, treatment techniques and prophylactic methods.

Industrial Hygiene.

Three medical officers are on the staff of the Industrial Hygiene Division. Their work gives valuable training in all aspects of industrial hygiene and medicine, and would equip a medical practitioner for a career either in an official position or in industry.

Research is carried out on diseases, both on those which are specifically occupational and on the influence of industrial conditions on those which are not specifically occupational. A close watch is kept on the toxicity of new compounds and the hazards associated with new industrial processes. Specific industries are sometimes surveyed at the request of employers, employees and others, and recommendations made for improving conditions in them.

Where specialized knowledge is required, help is often given to medical practitioners and works' doctors in diagnosing industrial diseases and certifying these for purposes of workers' compensation.

The Division gives courses of instruction in industrial hygiene and medicine to health inspectors and factory inspectors. In addition, it devises draft legislation for establishing healthy conditions in industry; it thus acts as a repository of expert knowledge and as an impartial authority for the dissemination and application of this knowledge.

Poliomyelitis.

The poliomyelitis division of the Department of Health provides a comprehensive service covering epidemiological investigation, diagnosis, treatment, aftercare and rehabilitation. In addition, clinical research work is carried out in conjunction with the physiology department of the University of Melbourne.

Poliomyelitis medical officers are responsible for the supervision of a large staff of physiotherapists, physiotherapy assistants and poliomyelitis aftercare sisters. Their administrative duties include the arrangement of clinics, the provision of splints and other appliances, and the transport of patients. In their epidemiological work every case is carefully investigated and assessed. Medical officers engaged in this work have an opportunity to acquire a thorough education in the clinical manifestations of poliomyelitis, in conservative orthopaedics and in epidemiological methods.

Tuberculosis.

In Victoria the great majority of persons suffering from pulmonary tuberculosis are cared for by Government agencies.

There are no private sanatoria and all tuberculosis patients are treated in State institutions or in hospitals of the Repatriation Commission.

The tuberculosis branch of the Health Department is responsible for both prevention and treatment of tuberculosis. The Director of this branch has three assistant directors; these are respectively in charge of: (a) clinical diagnosis in chest clinics and bureaux, (b) treatment in sanatoria and chalets, and (c) organization of mass X-ray surveys.

The chest clinics and bureaux are staffed by seven full-time medical officers, assisted by a number of physicians engaged part-time on a sessional basis.

On the staffs of the sanatoria are fourteen physicians. Besides the sanatoria there are ten country chalets attached to base hospitals, and the patients in these are attended by visiting physicians employed on a sessional basis. All major thoracic surgery for tuberculosis patients is undertaken at the Austin Hospital, where a full-time departmental medical officer is in charge of the surgical wards. A number of consultants visit the Austin Hospital and the sanatoria. Surgical and medical conferences are held regularly.

The Chest X-ray Division employs three full-time radiologists. The reading of chest X-ray films is carried out largely by radiologists in private practice, who are paid according to the numbers of films examined.

Apart from these divisions, there are two medical officers in charge of a "B.C.G." immunization campaign and one in charge of rehabilitation.

The majority of chest physicians and thoracic surgeons in Victoria are employed by the branch, either as full-time or part-time officers, and there are always opportunities for young graduates desiring training and experience in chest diseases.

Maternal and Child Hygiene.

The Maternal and Infant Welfare Division is responsible for the coordination of health services in Victoria for children from birth to six years of age. It is essentially an educational service, special emphasis being placed on parent guidance.

There are three sections: ante-natal, infant welfare and pre-school. The staff consists of seven full-time and part-time medical officers as well as infant welfare sisters and trained nursery kindergartners.

The aim of the Department is to set up child health services through municipalities, thus fostering local interest and effort.

Although mainly a teaching service, there are opportunities for clinical work, particularly in emergency housing areas and hostels, in the medical examination of infants and pre-school children, and in the ante-natal clinics. Medical officers need to have had previous obstetric and children's experience, as they must be able to speak with authority on health matters pertaining to women and children.

School Medical Services.

The staff of the School Medical Services in Victoria at present consists of the chief and assistant chief medical inspectors, 17 full-time medical officers and one part-time medical officer, 34 nurses and an appropriate clerical staff.

The service is designed to give each child three medical examinations during his school career. Parents are notified of defects found and recommended to obtain further advice and treatment from their family doctor. If a serious defect is found, the parent is invited to the school for a personal interview.

A nurse assists the medical officer at examinations, follows up all defects notified and, if these have not been rectified, visits the home to urge the cooperation of the parent. Other nurses make regular inspections twice each term of all children attending schools in the metropolitan area and provincial cities for infectious conditions of the skin and hair. Teachers refer many problem cases to them at these visits, and a special examination is then arranged.

An important function of the medical officer is to refer children who are handicapped mentally or physically to the special schools or classes available for their education and adapted to their particular disability.

The routine handling and examination of so many "well" children offer excellent training to the young practitioner who intends to take up general practice or to specialize in paediatrics.

VICTORIAN MENTAL HYGIENE AUTHORITY.¹

The Mental Hygiene Authority Act of 1950 authorized the vesting of the control of the Department in an authority of three members—chairman and deputy chairman, respectively,

¹ Information supplied by Dr. E. Cunningham Dax.

to be medical practitioners and the third member to be a person with administrative skill and experience. The Authority took over control from the Director of Mental Hygiene on February 1, 1952, and the Act authorized a change in the control, appointment and promotion of medical personnel and the fixing of their emoluments. Formerly this was vested in the Public Service Board, but now it is arranged between the Authority and the Governor-in-Council.

The new Act was designed to give the Authority a charter to modernize and improve treatment, to institute preventive measures and to establish facilities for research.

Institutions under Control of the Authority.

For Adults.—Nine mental hospitals are situated as follows: Kew, Royal Park, Mont Park, Larundel, Bundoorra (Repatriation cases), situated in the metropolis; Ararat, Beechworth, Sunbury, Ballarat and Warrnambool (not yet in occupation) outside the metropolitan area. Receiving houses are attached to Royal Park and Ballarat Mental Hospitals.

For Mental Defectives there are: Kew Children's Cottages, Travancore Developmental Centre (Flemington), Janefield Colony, "Moorakynne" Hostel for girls, Pleasant Creek Special School (Stawell).

Clinics include the following: Child Psychiatric Clinic, 14 Collins Street, Melbourne; Travancore Clinic, Flemington, for children with mental retardation; Children's Court Clinic, Flinders Lane, Melbourne, for children referred from the Court; Observatory Clinic, South Yarra, for children and adults.

Future Planning.

Considerable changes are being made within the Department in regard to new works; they fall into four categories: early treatment centres, clinics and preventive psychiatry; modernization of old buildings; staff accommodation; hospital services.

A further clinic extension is about to be opened. Early treatment centres are planned in the first place at Royal Park and Traralgon, and it is hoped that these will be followed by others in the various parts of the State, giving the opportunity for psychiatrists to have full facilities for every type of modern treatment.

Kew, Ararat, Beechworth and parts of Sunbury hospitals are being replanned, altered, repainted and modernized, and a neurosurgical unit will shortly be completed at Mont Park.

Several new nurses' homes are being constructed and a modern training school is being erected at Royal Park, sufficiently large to take all the nurses for their preliminary training courses.

The general services for the hospitals are being overhauled and a number of major projects are under way. The Department accordingly gives many opportunities for those people who wish to contribute to changes and improvements and planning for a really modern service.

Salaries and conditions of employment: Medical officers are engaged on a salary of £1485 to £1635 (females £1228 to £1320), after which there is an opportunity for promotion to the post of senior medical officer, £1760 to £1960 (females £1470 to £1670), and psychiatrists, £2060 to £2210. Medical superintendents receive £2060 to £2260.

A diploma in psychological medicine or its equivalent is a normal requirement for promotion to the post of senior medical officer. A psychiatrist must also possess a higher qualification or special experience in some branch of psychiatry. There is a post of chief medical officer, salary £2360 to £2610, and that of a chief clinical officer, which has not as yet been filled.

Included in these salaries is the cost of living allowance, at present £360 for males and £270 for females. One hundred pounds *per annum* is added for the possession of a diploma in psychological medicine or its equivalent.

Accommodation.

Flats or houses are available for married medical officers at some of the hospitals at 7½% of yearly salary *plus* fuel 8s. *per annum*. These quarters are partly furnished, and light, water, milk and vegetables are supplied without any addition to the charge specified. In most cases there is accommodation with board and lodging available for single medical officers at £130 *per annum* for board and lodging.

Policy.

The Authority's policy is to place recently appointed medical officers at the metropolitan institutions at the first available opportunity for intensive training, and also to enable them to proceed with post-graduate work for the D.P.M. and other senior degrees, for which an increasing amount of instruction is available.

The Department's policy is to encourage all medical officers to do out-patient work at extramural centres.

QUEENSLAND.¹

The Public Health Service in Queensland came into being as an organization with the passage of *The Health Act* of 1900, the medical staff at that time comprising a commissioner and a health officer. Its main function was sanitation, but increased knowledge of preventive medicine has necessitated expansion of the activities of the Department, which is now divided into divisions, each with an expert medical officer directing activities. These cover public health supervision, which includes the communicable diseases, environmental sanitation and control of food and drugs; tuberculosis; industrial medicine; maternal and child welfare; school health services; mental hygiene; and laboratory services, both pathological and analytical.

Responsibility for the administration of regulations governing environmental sanitation and certain infectious diseases has been delegated to the local authority, who is required by the Act to appoint both health inspectors and medical officers of health, who are part-time and act as advisers to the local authority. These appointments must be approved by the Director-General, and the services of these officers cannot be terminated without his permission. The salaries of the positions of medical officer of health are variable, most being on a fee for service basis together with a retaining fee.

The department is now known as the Health and Medical Section of the Department of Health and Home Affairs, the Director-General, subject to the Minister, being charged with the administration of the *Health Acts*. He is assisted by a deputy director-general, who is also responsible for the direction of the Division of Public Health Supervision. A prerequisite for these positions is the possession of a diploma of public health or the combined diploma of tropical medicine and tropical hygiene.

Division of Tuberculosis.

The Division of Tuberculosis, which was formed in 1949 to take part in the Commonwealth-wide scheme to control the disease, is under the supervision of a director, assisted by two full-time medical officers, one of whom is stationed at Thursday Island, where a 45-bed hospital for tuberculous natives has been established.

The director and his medical officer, in addition to organizing the preventive and control aspects of the campaign, hold appointments on the clinical staff of the Brisbane hospitals admitting patients suffering from the disease. The salary range of the director is £1750 to £2000 and of the medical officer £1367 10s. to £1617 10s. a year.

School Health Services.

The branch of the department dealing with school health services was established in 1911. It is under the control of the chief medical officer, who has a staff of two medical officers, one part-time doctor, 17 ophthalmic officers who are private medical practitioners in country areas, 20 nurses and 24 dentists. Difficulty has been experienced in obtaining full-time medical officers, and it is intended that holders of State medical fellowships will be appointed when the requirements of doctors in isolated country areas have been fulfilled.

The ophthalmic officers are usually doctors in one-doctor towns in western Queensland, who examine the eyes of school children in their areas for trachoma at monthly intervals. This disease, which at one time was very severe in Queensland, is now rarely seen in other than a mild form.

The purpose of the School Health Services is to examine every child both medically and dentally on a number of occasions during his school career. The child is referred to his family doctor or dentist or the nearest hospital for any treatment found necessary. Where there is no dentist in the area dental treatment is given.

The salary range of the chief medical officer is £1500 to £1750 and of medical officers £1210 to £1390; for part-time officers it varies between £50 and £150 *per annum*.

Division of Industrial Medicine.

In Queensland legislation for the control of industrial medicine is administered by the Factories and Shops Inspectorate of the Department of Labour and Industry. The degree of industrialization of Queensland is limited and does not require a large medical staff. The director, freed from the necessity of implementing the law, is looked upon by both employer and employee as an unbiased adviser, and both sections of industry have no hesitation in accepting his advice and decisions. He is assisted by technicians attached to the analytical and pathological laboratories in his investigations

¹From information supplied by Dr. A. Fryberg, Director-General of Health and Medical Services.

of problems or disputes. The salary of the Director of Industrial Medicine is £1500 to £1750 per annum.

Laboratory of Microbiology and Pathology.

The Laboratory of Microbiology and Pathology, which is under the control of a director, assisted by a deputy, is responsible for the pathological requirements of the various departmental activities. They are assisted by a staff of eleven technicians. In addition the medical officers are responsible for the conduct of coroners' post-mortem examinations.

It is appreciated that research raises the standard of work of a laboratory, and in this regard at the present time there is cooperation with the Queensland Institute of Medical Research in the investigation of the fevers of unknown origin of north Queensland. It was in this laboratory that "Q" fever was diagnosed as a separate clinical entity.

The laboratory also carries out any examinations in clinical pathology requested by private practitioners.

The salary ranges are: director £1750 to £2000, and deputy director £1500 to £1750 per annum.

Division of Maternal and Child Welfare.

The Division of Maternal and Child Welfare has grown since 1918 from four centres situated in the metropolitan area to 209 centres and sub-centres, which cover the whole State, in 1952. Mothers are visited in hospital and encouraged to bring their babies either to their own doctor or to the centres from the time of discharge from hospital until they commence school. Five hostels have been established for babies who present feeding problems, and if the child is breast fed it is accompanied by its mother.

The control of the Maternal and Child Welfare Service is vested in the director and deputy director, who are assisted by three part-time medical officers and a staff of 121 nurses, who are triple-certificated. The salary classification of the director is £1500 to £1750, while the deputy director receives an actual salary of £1451 10s. per annum.

Public Hospitals.

Until 1918 all hospitals in Queensland were under the control of local committees and were financed by voluntary subscriptions, which were subsidized by the Government. In that year the Brisbane Hospital became insolvent and the financial responsibility was assumed by the Government. The voluntary system of finance continued to fail, and in 1923 the Brisbane Hospital, following the enactment of the *Hospitals Act*, passed to the control of a board appointed by the Government and local authorities of the Brisbane and South Coast area. Of the net cost of upkeep 60% was met by the Government, the local authority contributing the balance. During the succeeding twenty years other hospital committees requested the Government to "district" their hospitals, and in 1945 all the remaining voluntary hospitals were "districted". In the meantime the Government assumed full responsibility for financing the hospitals.

There are now 127 hospitals in Queensland, about half of which are situated in one-doctor towns.

Any person may receive free hospital treatment as a right in this State. In the implementation of this policy the honorary medical system was superseded by a part-time paid medical service.

The payment of part-time visiting staff has been extended to the base hospitals in the country in order to attract specialists to base hospital areas. These practitioners receive salary equal to that of senior specialists of the Brisbane Hospital to assist them in establishing themselves in their specialties. There are still vacancies in country base hospitals for such doctors.

The salary received by senior specialists at the Brisbane Hospital is £270 to £300 per annum for one weekly session of three hours. For a junior specialist it is £200 to £225 per annum, and for a clinical assistant it is £165 per annum per weekly session of three hours. The average number of sessions attended is three per week.

The salary range of full-time superintendents of public hospitals varies from £1245 to £1905 per annum, depending on the size and situation of the hospital, together with a house, fuel and light. The classification of senior resident medical officers in country hospitals is £1080 to £1130. Part-time medical superintendents' salaries vary from a minimum of £725 to a maximum of £1150 per annum, depending on the size and location of the hospital. These part-time superintendencies carry the right of private practice.

Division of Mental Hygiene.

The Division of Mental Hygiene is passing through a developmental stage which will bring it into line with modern ideas of psychiatric treatment. It is planned that, because

of long distances, development will take place on a regional system, each region having all the specialized phases of a mental hygiene service.

As a first step psychiatric clinics attached to the general base hospitals at Toowoomba and Townsville under the control of a specialist psychiatrist have been established, in addition to the Brisbane psychiatric clinic, while the new mental hospital being erected in North Queensland will be the fourth in the State.

Cabinet approval has been given for the building of a separate institution for purely senile patients, a neuro-psychiatric clinic for the criminal mentally ill, an establishment for the care and training of backward people, and an extension of rehabilitation services.

There is an institution for epileptics at Toowoomba.

The salary of the Director of Mental Hygiene is £1950 to £2200 per annum, medical superintendents are paid within the salary range £1395 to £1905, depending on the size of the hospital, and medical officers £1210 to £1390 per annum.

Queensland Radium Institute.

The Queensland Radium Institute is a corporate body constituted under the *Health Acts* and established on the advice of Dr. Ralston Paterson and Dr. Edith Paterson. All major treatment, including deep X-ray therapy, is carried out in Brisbane, while superficial X-ray therapy and follow-up are carried out at country sub-centres, which are under the supervision of a local practitioner. A radiotherapist and physicist from the Institute's staff visit the sub-centres at regular intervals. Medical officers are given every opportunity to study for the D.T.R. The staff includes full and part-time radiotherapists.

Queensland Institute of Medical Research.

The Queensland Institute of Medical Research was established by Act of Parliament for the purpose of research into any branch of medical science, with a bias to the infectious diseases. At the present time medical workers are employed in virus and bacteriological research and in parasitological studies. Research fellowships are available for research workers interested in the above work, particularly in the investigation of the obscure fevers of North Queensland.

The Radium Institute and the Institute of Medical Research are wholly maintained by the Queensland Government.

University Lectures.

All heads of divisions are required to give lectures to medical students in social and tropical medicine.

Cost-of-Living Adjustment.

The salaries of all full-time officers, both in the Department and in public hospitals, are subject to the basic wage adjustment, which is, in Queensland, at the present time £122 10s.

SOUTH AUSTRALIA.

Department of Public Health.¹

THE South Australian *Health Act*, with its ancillary legislation, is administered by the Department of Public Health, which is responsible to the State Minister of Health. Associated with the Department is the Central Board of Health, a statutory body whose main duty is to guide and direct the work of the 143 local boards of health, constituted by the municipal and district councils, covering the populated area of the State. The resources of the Health Department's staff, including medical officers, health inspectors, and administrative and clerical officers, provide the means for the Central Board to perform its functions. The Director-General of Public Health is the head of the Department and is also Chairman of the Central Board of Health.

The system of health administration is based on the long-established English method of central direction and local performance. Thus each local board carries out the public health functions for its area: environmental hygiene, infectious diseases control, and supervision of food supplies are the three major groups for attention. For the purpose each local board employs a medical officer of health (in a part-time capacity), one or more health inspectors, a secretary and sometimes other staff. The local board for the City of Adelaide also employs radiographers for its chest surveys and a trained social worker. For the smaller towns and the sparsely populated country areas there is little opportunity for spectacular work in public health, although the general

¹ From information supplied by Dr. A. R. Southwood, Director-General of Public Health.

sanitary requirements are reasonably well supervised by the limited staff available.

The local medical officer of health is usually a practitioner living in the district. He advises the local board from time to time on technical and medical aspects. It is unfortunate that the financial reward for such important work is generally meagre. In spite of that, many medical men have over the years given sterling service to the community and the State has reason to be grateful to them. Certainly local health work provides the opportunity for a medical man to display his qualities of good citizenship.

Last year the Government decided to incorporate the existing School Medical Service with the Health Department. The transfer has been effected, and the Principal Medical Officer for Schools, and with his professional and clinical associates, are now officers of the Health Department.

The public hospitals, including general hospitals, infectious disease wards, mental hospitals, and sanatoria for tuberculosis, are administered by the State Hospitals Department. That Department also supervises the Government-subsidized hospitals situated in the country areas.

Coordination of these and other medical functions of the State Government is effected by the Advisory Council on Health and Medical Services, a statutory body consisting of senior professional officers, a nominee of the South Australian Branch of the British Medical Association (Dr. L. R. Mallen), and a woman practitioner appointed by the Government (Dr. Helen Mayo).

Medical Staff.

The general professional work of the Health Department is conducted by the senior medical officer and a small staff of medical officers. The diploma of public health is a desirable qualification for appointment. Much time is spent by the medical officers in country areas, advising and conferring with local medical officers of health. Problems of sanitation, of infectious diseases control, and of the wholesomeness of food supplies come to their attention.

The Principal Medical Officer for Schools is also assisted by a staff of doctors, dentists, and nurses. Reports on the medical examinations of the children are sent to parents "for information and action".

The Director of Tuberculosis and his staff, including radiographers, nurses and clerks, conduct mass X-ray surveys. Last year Parliament provided for the compulsory X-ray examination of selected groups of people, and that work is now proceeding. Mantoux testing and B.C.G. inoculation of school children are also being done by the medical staff. Besides his functions in the community aspects of tuberculosis control, the Director has charge of the State institutions for the treatment of tuberculosis; in this he acts on behalf of the Director-General of Medical Services (Hospitals Department).

A medical officer of the Health Department is also associated with the Venereal Diseases Clinic at the Royal Adelaide Hospital, and assists in the "follow-up" social work.

Laboratory investigations required for the Health Department are made by the Institute of Medical and Veterinary Science and by the Department of Chemistry—both State Government institutions especially staffed and equipped for the technical work.

Policy on Appointments and Training.

Public health has become a recognized specialty of medical practice. It requires suitably endowed practitioners, well versed in modern medical learning, of wide general knowledge, and amply provided with kindness and tact. The task of translating the advances in medical science into everyday practice for the community or group—as distinct from the ailing individual—is often no easy one.

The aim of the Department is to provide a training course for the would-be specialist. When any vacancy occurs on the medical staff it is desired to fill it by appointing a practitioner qualified for five years or so and adequately trained in hospital duties and in the routine of general practice. Knowledge of the conditions of life and work of the people is essential for the public health specialist, as indeed it is for any medical specialist. On that sound foundation the young doctor may hope to base his training for a career in public health. So, at 29 to 30 years of age, the doctor takes up his duties in the department. Though well equipped for general practice, he has much to learn of public health. It is considered that the best initial training is for him to be engaged in the practical everyday tasks of a health department. For about two years the appointee may expect to

share in the professional duties of his specialist colleagues. In that way he comes to know the detailed requirements—what the problems are and how to deal with them. Visits of inspection to country districts will occupy some of his time, but for the most part he will be engaged on work in or near the metropolitan area.

After that period as a junior medical officer, a specialist-in-training, it is expected that a scholarship will be available, enabling scientific studies in higher branches of public health to be taken up. For that purpose study-leave for one academic year can be expected, so that the course for the diploma in public health can be followed. The School of Public Health and Tropical Medicine at the University of Sydney provides the course suitable for Australian conditions, and the leave and allowances make that training available for the officer. The diploma is practically essential for anybody preparing to specialize in the branch.

Having completed the diploma course, the doctor would return to the Department and continue his work on its staff. The gaining of the diploma would qualify him for elevation in grading, with additional emoluments.

Each year, on the recommendation of the National Health and Medical Research Council, the Commonwealth Government makes available two overseas travelling fellowships in post-graduate study for whole-time medical officers of the Government services. In 1948 the Senior Medical Officer of the Department was a successful applicant for one of the fellowships. He studied industrial hygiene in England and Scandinavia. Last year the Medical Superintendent of Northfield Infectious Wards, Royal Adelaide Hospital, gained a fellowship; hospital administration and geriatrics engaged his attention abroad. Doubtless such fellowships will continue to be awarded to keen young men in the public health field.

Mental Health Services of South Australia.¹

With a State population of 720,000, which has increased recently at the rate of 20,000 annually, the facilities for the care and treatment of the mentally sick are being expanded both structurally and by increased staffing.

At the Royal Adelaide Hospital an out-patient psychiatric department functions every afternoon.

For those patients with early mental illnesses Enfield Receiving House provides in-patient treatment for up to six months. The annual admission rate is approximately 900, consisting of voluntary patients and those admitted under simple certification.

Parkside Mental Hospital, within two miles of the university city of Adelaide, has a population of some 1600 and an admission rate of 350 patients. At the present time an extensive building programme is in hand for both new buildings and renovations of the older structures.

Northfield Mental Hospital was commenced in 1929 and at the present time accommodates 800 patients. To provide for an increasing number of patients consequent upon the growing population and the fewer private hospitals now open, the South Australian Government has approved of new buildings to the value of one million pounds.

Medical Staff.

The staff position at the three mental hospitals is now satisfactory with the exception of the number of medical officers. There are a number of medical vacancies with facilities for study and promotion. One outstanding advantage in the South Australian Mental Health Service is the provision of six months' leave on full pay after every five years of service in residence. This wise provision enables the younger medical officer to gain the necessary practical experience and then to go abroad or elsewhere for the purpose of taking a higher qualification, like the diploma in psychological medicine. In point of fact, the annual recreational leaves may be made to coincide with the beginning and end of the six months' leave and so there is assured some nine months' study leave on full pay.

The more senior medical staff use the long leave for either research or "a brush-up" in general medicine.

The rates of pay for the commencing posts of resident medical officers are as follows. Commencing salary £1389 per annum, rising by increments to £1649. And in addition houses free of rent, but without any other perquisite, will be provided at the hospitals.

For medical officers who are single, board and lodging are provided at a nominal charge. Higher rates of pay are applicable to the more senior posts. The Superintendent of Mental Institutions at Parkside Mental Hospital would be pleased to supply further information to those interested.

¹ From information supplied by Dr. Hugh M. Birch, Superintendent of Mental Institutions, South Australia.

WESTERN AUSTRALIA.¹

The Public Health Department of Western Australia administers two Acts—the *Health Act*, 1911-1950, and the *Hospitals Act*, 1927-1948.

The administration of the *Health Act* is vested in the Commissioner of Public Health, who is subject to the Minister for Health.

The Commissioner is assisted by a Deputy Commissioner and a number of medical and other officers. The administrative structure of the Department comprises certain specialized divisions or sections, and its activities may conveniently be considered in accordance with its specific responsibilities.

Local Health Authorities.

The authorities responsible for the local administration of the Act throughout the State are 147 in number. Each is required, under the Act, to obtain the services of a medical officer for health, a health inspector and such other staff as is necessary for it to perform its duties. The Commissioner of Public Health exercises a general supervision over the activities of all local authorities in health matters.

Many local authorities have neither the population nor the revenue derived from a health rate to warrant the appointment of full-time health inspectors. These are in the process of being combined into various health regions and the constituent local authorities of each region contribute towards the expense of appointing an inspector.

No local authority as yet appoints a whole-time medical officer of health. It is desirable to combine various local authorities into regions and for them jointly to appoint regional medical officers of health throughout the State. Owing to the shortage of medical men with public health training this at the present is impracticable.

For the purpose of these activities the Health Department has on its staff, and responsible to the Commissioner, twenty-one health inspectors, who, in addition to certain departmental duties, advise local health authorities on sanitary matters and assist local inspectors. They also are responsible for meat inspections at large central abattoirs and at the Port of Fremantle.

Environmental Sanitation.

As is usual in most public health legislation, the *Health Act* provides for the control of environmental sanitation, including sewerage, disposal of effluents, drainage, sanitary conveniences, scavenging and cleansing, dwellings, boarding houses, eating houses, the control of nuisances and offensive trades and insect control (including Argentine ants).

The Department of Public Health is represented on the Metropolitan and Country Water Purity Committees, together with water supply and sewerage engineers, the Government Analyst and representatives from the Agricultural and Forestry Departments.

A close relationship exists between the Department, the Town Planning Board and the Housing Commission, and new subdivisions of land for housing and town-planning are referred by these other authorities to the Commissioner of Public Health for an opinion before new developments take place.

Communicable Diseases.

Under the Act, infectious diseases have to be notified to the responsible local authority and the Commissioner. Wide powers are given to medical officers of health and health inspectors for the purpose of entry into premises and control over infected persons.

The Department has appointed an epidemiologist whose specific responsibility it is to conduct investigations into the incidence of the respective diseases and report on their control.

Venereal diseases are notifiable, but the name of the patient is only disclosed to the Commissioner if he or she refuses to undergo treatment, in which case he or she may be prosecuted. A medical officer is employed part-time by the Department at the Royal Perth Hospital and conducts clinics for the treatment of venereal diseases.

Tuberculosis Control.

Owing to its widespread nature and severe economic social consequences, tuberculosis is considered to be an infectious disease of a special nature, and a Tuberculosis Control Branch, under a Director of Tuberculosis, has been organized. This branch is responsible for all case-finding, diagnosis, treatment and after-care, and has a large staff of tuberculosis and chest specialists, thoracic surgeons, anaesthetists and nurses and mobile X-ray units. It conducts a sanatorium

and is at the present engaged in the planning of a new 200-bed chest hospital in Perth. Rehabilitation is an important activity, and close liaison exists between officers of the Department and the Western Australian Branch of the Australian Tuberculosis Association, which conducts a colony at Linley Valley, Wooroloo, and a sheltered workshop in Perth.

Food and Drugs.

An Advisory Committee appointed by the Governor assists and advises in the administration of the Food and Drug Regulations. The Commissioner is *ex officio* chairman of this Committee.

Industrial Health.

Within the past year increasing attention has been paid to the subject of industrial medicine. Certain industrial diseases scheduled under the *Workers' Compensation Act* are notifiable to the Commissioner of Public Health.

Maternal and Infant Welfare.

Under the Act, the only nurses permitted to practise midwifery are those who have been specially trained and registered under the *Nurses' Registration Act*. Every case in which the death of a woman occurs as a result of pregnancy or childbirth has to be reported to a magistrate, who calls for an independent report from an obstetrician and a midwife. These reports are then returned through the Commissioner of Public Health to the magistrate, who may decide to hold a court of inquiry if the circumstances warrant it.

An investigation into the causes of stillbirth is in progress, and for this purpose post-mortem examination of stillborn infants is compulsory in selected parts of the State.

The infant health branch is organized under the Medical Supervisor of Infant Health, who appoints infant health nurses and arranges for the staffing of 44 infant health centres with 240 sub-centres.

Schools' Medical Service.

School children receive periodic medical examinations, and if they are in need of medical treatment this may be enforced.

School medical services are organized under the Senior Medical Officer of Schools. In this branch there are five medical officers and eight school nurses. At the present every child is examined by a school medical officer every two years and the school nurses conduct follow-ups.

Dental Services.

Corresponding to the school medical service there is a school dental service. Under the Senior Dental Officer of Schools there are fourteen dental officers. The service operates eleven mobile units in caravans, and it is planned to examine and treat all school children every two years.

Hospital Administration.

The correlation of the *Hospitals Act* with the *Health Act* is ensured by the Commissioner of Public Health holding the dual appointment of Principal Medical Officer under the *Hospitals Act* and Commissioner of Public Health under the *Health Act*.

The Department administers thirty-six departmental hospitals, including the King Edward Memorial Hospital (Maternity) and the Kalgoorlie Hospital. In addition, the Principal Medical Officer and the Under Secretary are members of the boards of management of the large metropolitan hospitals.

As the small hospitals in country areas, which are administered by boards (of which there are fifty-six), have to obtain almost all their funds from the State Government, the Department is able to exercise a considerable amount of control and supervision over the activities of these hospitals as well as their own departmental hospitals.

The Commissioner of Public Health is the Chairman of the Nurses' Registration Board. He is also a statutory member of the Medical Board and the Physiotherapists' Board.

Private hospitals, including maternity homes, have to be licensed under the *Health Act*, and it is thus possible to ensure that they are conducted according to a reasonable standard of efficiency.

North-West and Flying Doctor Services.

The north-western parts of the State constitute a special and peculiar problem. Owing to their isolation from the rest of the State in the tropics and to the close association of the white population with the indigenous aborigines, special measures have to be adopted. The Department has a white and native hospital in each of the main towns of Wyndham, Derby, Broome, Port Hedland, Roebourne and Onslow, and the doctors in these towns not only do the general medical

¹ From information supplied by Dr. Linley Hensell, Commissioner of Public Health and Principal Medical Officer.

work of the population but also act as the local medical officers of health.

In the Kimberleys leprosy among the native population is an urgent problem, and at Derby there is a leprosarium which at the present accommodates 305 patients. Treatment is along modern lines and new methods are being experimentally investigated.

One of the medical officers stationed in Derby makes a periodic tour examining all natives in the Kimberleys in order to detect previously unsuspected cases of leprosy.

The medical men in the north and north-west do not engage in private practice. They are paid a salary by the Department and the Department charges their patients fees for their services. The Department subsidizes the Flying Doctor Service, for which these medical men act as the flying doctors.

Native Health.

The Department is responsible for the medical examination of aborigines and, by an arrangement with the Department of Native Affairs, has assumed control of all native hospitals throughout the State.

It has concluded an arrangement with the Department of Native Affairs whereby medical men in private practice treat natives as private patients. Where the native is unable to afford to pay private fees, the Department of Native Affairs pays the doctor at workers' compensation rates.

Laboratory Services.

Laboratory services are controlled by a director, who has on his staff a pathologist, bacteriologist and biochemist, 27 technicians and 17 other staff. These laboratories are placed within the Royal Perth Hospital and do the routine work of the hospital as well as that of the Department. There is a vigorous branch of the laboratory attached to the King Edward Memorial Hospital, which is investigating pathological problems associated with pregnancy and its complications. Sub-branches are in course of formation in the larger country regional hospitals.

In 1950 a Cancer Research Laboratory was established through the good fortune of the State obtaining as permanent residents Professor W. E. Gye and Professor Ida Mann. These two workers are continuing their work which they performed in London when Professor Gye was the Director of the Imperial Cancer Research Fund.¹

Liaison.

In order to maintain closer liaison with the practising profession and to integrate preventive and curative medicine more closely, a State Health Council was formed in 1949. This Council is under the chairmanship of the Commissioner of Public Health and is composed of a number of medical men nominated by the Western Australian Branch of the British Medical Association, together with the Under Secretary.

Contact and cooperation with other State health departments and with the Commonwealth Health Department is effected largely through the National Health and Medical Research Council. The Commissioner is a member of this Council, his deputy is on its Industrial Health Committee, and the epidemiologist is a member of its Poliomyelitis Committee. The Director of Tuberculosis Control is a member of the National Tuberculosis Advisory Council.

Concluding Remarks.

In reviewing the activities of a public health and hospital department one cannot but be impressed by a fact which is of great significance. The number of Australian medical men interested in public health work is very limited. There is an excellent School of Public Health and Tropical Medicine in Sydney, which has a paucity of medical graduates attending its post-graduate courses for the diplomas in public health and tropical medicine. Further, medical men trained in hospital administration are rare. Most hospital workers will agree that, other things being equal, the medical administrator is preferable to the non-medical. The employment of a medical man in these positions of responsibility in hospital administration in this country is rather casual and fortuitous. There are insufficient of them prepared to take up hospital administration as a permanent professional career, just as there is an insufficient number interested in a career in public health and preventive medicine.

From this rather incomplete review of the main activities of the Public Health Department it will be seen that these are far more comprehensive than the former relatively narrow concept of environmental sanitation and isolation of cases of

infectious disease which were the chief functions of the older health legislation. With the evolution of modern medicine the Department must branch out into wider fields in epidemiology, the control and treatment of infectious diseases, industrial medicine and the study of all factors having a bearing on social health. There are many fields opening out in "social medicine" which may appeal to the young doctor looking forward to a choice of specializing in his career.

TASMANIA.¹

THE Department of Public Health of Tasmania is constituted under the *Public Health Act*, with the Minister for Health as the ministerial head.

The Director-General of Medical Services, as head of the Department, is responsible to the Minister for the proper functioning of the Department.

The Department is organized in divisions with a medical directorate according to the various Acts of Parliament and Government services administered. The divisions and their functions are to a great extent self-explanatory, but some further explanation in respect of the activities will assist in assessing the extent of the health and medical services as carried out by the directorate and medical officers.

Division of Public Health.

The Division of Public Health is that portion of the Department that is particularly concerned with general sanitation, with the prevention of infectious disease, and with positive measures toward the attainment of health.

Sanitation is largely a local matter, in the hands of the municipal councils. The division maintains general supervision over the activities of the municipalities and endeavours to keep them up to a satisfactory standard, by persuasion if possible. If necessary, the Department can override the local authority; the Director of Public Health has wide powers under the *Public Health Act*, and can insist on municipal councils carrying out his recommendations for improvement of sanitation or the abatement of nuisances.

The control of infectious disease is an important activity of the Department. The Act prescribes that all cases shall be notified both to the Department and to the local authority. By this means the director knows when an outbreak reaches an epidemic level, and can assist the local authority in measures designed to control it. The division has been very active in advocating immunization of children against diphtheria and whooping-cough, and large numbers of infants have been immunized during the last five years, despite an interruption to the campaign during the poliomyelitis outbreak in 1949-1951.

The division administers the *Food and Drugs Act* and Regulations, which prescribe standards for purity of most articles of food and drink. The division also administers the *Places of Public Entertainment Act*.

A very important part of the division's activities is in the field of child welfare. Throughout the State there are 91 child welfare centres, including seven mobile units, staffed by 40 full-time sisters and six part-time. In the year 1951-1952 the staff paid 70,509 visits to homes. Lectures in mothercraft are given to girls in their last year at school, and wireless talks are given by sisters at Hobart and Queenstown. As the child advances in age and goes to school, it comes under the care of the School Health Service, which provides regular medical and dental examinations and dental treatment. At present there are two full-time school medical officers and three part-time.

The only position available for medical graduates in the division at the present time is that of full-time school medical officer. There is one such vacancy. Although the work would be predominantly in the School Health Service, there would be an opportunity for an appointee who was interested to have some experience of other sides of the public health work.

Division of Hospital and Medical Services.

The *Hospitals Act* sets out the responsibilities in respect of investigation and inquiry as to hospital accommodation necessary to meet the needs of the sick or injured persons resident in Tasmania. It provides also for the supervision of the management, maintenance and services of all public hospitals. The Department has control in matters of finance and appointments to the more important positions in the hospitals.

¹This was written before the death of Professor W. E. Gye, which occurred on October 14, 1952, but we understand that the research will be carried on by Professor Ida Mann.

¹From information supplied by Dr. John Edis, Director-General of Medical Services.

Hospitals are grouped as follows: (a) major base hospitals at Hobart and Launceston; (b) maternity hospitals at Hobart and Launceston; (c) minor base hospitals at Latrobe, Burnie, Wynyard and Queenstown; (d) country and district hospitals at Zeehan, Smithton, Ulverstone, Devonport, Longford, Beaconsfield, Scottsdale, St. Marys, Campbell Town, New Norfolk, Franklin and King Island; (e) twenty-five bush nursing hospitals and centres; (f) St. John's Park, New Town, and Home for Invalids, Launceston, for the aged and invalid; (g) Lachlan Park Hospital and Millbrook Rise Hospital, New Norfolk, for mental patients and psychopathic patients respectively; (h) Tasmanian chest hospitals at New Town and Perth for tuberculosis patients; (i) Mothercraft Home, New Town, for babies requiring special care and treatment, for education of mothers in such cases, and for training of mothercraft nurses; (j) crippled children's homes at New Town and St. Leonards.

Specialist services are attached to the major base hospitals, and the specialists visit the other hospitals periodically, as arranged.

The Government has entered into agreements with eighteen municipal councils for the provision of medical services in their districts. Medical officers have been appointed by the Government to give free medical services in these districts.

Division of Tuberculosis.

The Tuberculosis Division carries out an active anti-tuberculosis campaign of case-finding by means of compulsory miniature X-ray surveys carried out continuously in all parts of the State. The survey is compulsory in the case of all persons between the ages of fourteen and sixty-five years. At the present time 100,000 persons are surveyed annually.

There are four chest clinics in the State which, in addition to assisting in the case-finding, carry out all the requirements of case management and supervision of patients before admission to, and after discharge from, the chest hospitals.

The division conducts two chest hospitals in the State, with a total of 154 beds. Within the next few weeks this number will be increased to 180. Further extensions, which will provide an additional 24 beds, are under construction.

B.C.G. vaccine is used widely on the preventive side for the groups usually advised. The division also conducts a weekly clinic in Hobart, where all "Mantoux-negative" persons under the age of forty years may be vaccinated if they so wish.

The division cooperates with the Commonwealth Department of Health, as provided for in the *Tuberculosis Arrangements Act* of the Commonwealth, and administers the *Tasmanian Tuberculosis Act, 1949*.

Within the division medical graduates are employed in the following positions: director of tuberculosis; senior medical officer, Tuberculosis Division; medical superintendent, Tasmanian Chest Hospital; medical superintendent, Northern Chest Hospital; medical officer, Tasmanian Chest Hospital; medical officer, B.C.G. clinics.

In addition, there is a panel of part-time practitioners, who interpret miniature films as well as large films.

A part-time medical officer is employed at the Hobart Chest Clinic, where additional sessions are conducted by the Director of Tuberculosis, the medical superintendent of the Tasmanian Chest Hospital, and the medical officer of the Tasmanian Chest Hospital.

The medical superintendent of the Northern Chest Hospital is responsible for conducting the Launceston Chest Clinic and B.C.G. activities in that centre. Some miniature films are read by this officer.

Part-time medical officers conduct the Devonport and Burnie chest clinics.

A part-time thoracic surgeon is employed, and he performs all the major surgery for the chest hospitals and the chest clinics at the Royal Hobart Hospital.

Training in all aspects of tuberculosis work is obtained by the medical superintendents and medical officers of the Tasmanian Chest Hospital and Northern Chest Hospital, since, in addition to hospital routine, these officers have responsibilities in the aftercare and social problems of the patients at the chest clinics.

Special training in B.C.G. vaccination in all its aspects is available to most medical officers of the division.

All the division's full-time medical officers have opportunities for extensive training in the interpretation of miniature and large X-ray films and, if numbers were sufficient, adequate training in the whole subject of chest radiology and the mechanical aspect of X-ray procedures would be available to interested medical graduates.

Division of Mental Hygiene.

The Division of Mental Hygiene provides the following services:

(i) Mental hospital care and treatment for psychotics and voluntary boarders.

(ii) A special hospital for treatment of neuroses and mild non-certifiable psychoses, treatment being purely voluntary, and period in hospital limited to three months (epileptics, alcoholics and patients with suicidal tendencies are barred from this hospital).

(iii) Out-patient psychiatric clinics at the Royal Hobart Hospital and limited number of psychiatric in-patients. (In the north, psychiatric clinics are conducted by the psychiatrist to the Launceston General Hospital, who does not come directly under this division.)

(iv) The State Psychological Clinic, Mental Deficiency Board and institutions for Mental Defectives constituted under the *Mental Deficiency Act*.

(v) Training of third and fourth year psychology students in clinical psychology (undertaken at the request of the University of Tasmania).

Positions available for medical graduates within the division are those of director of mental hygiene, medical superintendent, senior medical officer and medical officers of the hospitals under its control.

There are only two positions of medical officer at Lachlan Park Hospital which are junior positions and could be regarded as suitable for training in psychiatry. Unfortunately, owing to lack of a medical school in this State, it would be very difficult, if not impossible, to gain a diploma in psychological medicine from such a position.

Positions Available to Medical Graduates.

Positions available to medical graduates in the divisions are set out hereunder.

1. *Head of Department:* Director-General of Medical Services.

2. *Division of Public Health:* Director of Public Health, school medical officers.

3. *Division of Hospital and Medical Services:* Assistant to the Director-General. Public hospitals: superintendents, registrars, resident medical officers. Consulting specialists: orthopaedists, ear, nose and throat specialist, ophthalmologist, thoracic surgeon, psychiatrist, pathologist. Government medical officers.

4. *Division of Tuberculosis:* Director of Tuberculosis. Hospitals: superintendents, medical officers.

5. *Division of Mental Hygiene:* Director of Mental Hygiene, psychiatrist. Lachlan Park Hospital: superintendent, medical officers.

The Royal Australian Navy Medical Service.

(INFORMATION SUPPLIED ON REQUEST BY THE DIRECTOR OF NAVAL MEDICAL SERVICES.)

THE Royal Australian Navy at present has several vacancies for physically fit and capable young doctors, and it is anticipated that further vacancies will occur towards the end of 1952. Among the many attractions it can offer them, and those likely to make the most immediate appeal, are first-class professional practice under ideal conditions, including economic security, and the opportunity of working with men who have been selected after rigorous tests of their physical and mental standards.

Entry in the first instance is by short service engagement. The term of this engagement is primarily four years, but, for medical officers entered in Australasia it is two years. A gratuity of £500 is payable on retirement at the end of four years' service or proportionately on retirement after a minimum of two years' service.

A medical officer who enters for short service is given the rank of surgeon-lieutenant (equivalent army rank is captain; air force, flight-lieutenant). If at the end of the four years he transfers to the Permanent Naval Forces, he is promoted to surgeon lieutenant commander. Promotion to surgeon commander and above is by selection. Capable, industrious and alert officers are assured of advancement, which is made after full consideration of their service records.

The approximate periods which elapse between promotions are shown in the scale of pay attached herewith.

An important advantage of the system of short-term entry is that it enables the doctor who may be undecided about the choice of a career to gain sufficient experience of the life and work of a naval medical officer and to learn, while still young and without suffering financial loss, or binding himself to serve for a long period, whether he is suited to it.

TABLE I.
Rules of Pay and Allowances, May 2, 1952. (Subject to Cost of Living Adjustments.)

Rank.	Active Pay.	Medical Officers' Allowance.	Uniform Allowance.	Living Out Allowance. ¹	Total per Day.	Total per Annum.
	£ s. d.	£ s. d.	s. d.	s. d.	£ s. d.	£
Surgeon-Lieutenant	2 7 0	1 0 0	1 9	8 6	3 17 3	1,409
After two years	2 10 0	1 0 0	1 9	8 6	4 0 3	1,464
(Promoted Surgeon Lieutenant-Commander after four years.)						
Surgeon Lieutenant-Commander	2 17 6	1 0 0	1 9	8 6	4 7 9	1,601
After two years	2 19 6	1 0 0	1 9	8 6	4 9 9	1,657
After four years	3 1 6	1 0 0	1 9	8 6	4 11 9	1,674
After six years	3 3 6	1 0 0	1 9	8 6	4 13 9	1,710
(Normal stage of promotion to Surgeon Commander, if selected.)						
After eight years	3 5 6	1 0 0	1 9	8 6	4 15 9	1,747
After ten years	3 7 6	1 0 0	1 9	8 6	4 17 9	1,783
Surgeon Commander	3 12 6	0 15 0	1 9	8 6	4 17 9	1,783
After two years	3 14 6	0 15 0	1 9	8 6	4 19 9	1,820
After four years	3 16 6	0 15 0	1 9	8 6	5 1 9	1,856
After six years	3 18 6	0 15 0	1 9	8 6	5 3 9	1,893
(Normal stage of promotion to Surgeon Captain, if selected.)						
After eight years	4 0 6	0 15 0	1 9	8 6	5 5 9	1,929
After ten years	4 2 6	0 15 0	1 9	8 6	5 7 9	1,966
Surgeon Captain	4 8 0	0 15 0	1 9	8 6	5 13 3	2,066
After two years	4 10 6	0 15 0	1 9	8 6	5 15 9	2,112
After four years	4 13 0	0 15 0	1 9	8 6	5 18 3	2,158
After six years	4 15 6	0 15 0	1 9	8 6	6 0 9	2,203
After eight years	4 18 0	0 15 0	1 9	8 6	6 3 3	2,249
After ten years	5 1 0	0 15 0	1 9	8 6	6 6 3	2,304
Surgeon Rear Admiral	Consolidated rate of pay of £2,600 per annum.					

¹ 8s. 6d. per day is payable when on long leave.

If at the end of the short service commission he decides to enter some other branch of medical practice he will have gained both in experience and monetarily.

A medical officer whose appointment was effected within two years after the date of his graduation will be eligible, prior to discharge after four years' continuous service, for 90 days' special leave on full pay if he undertakes an approved refresher course.

If he decides to continue as a member of the Permanent Naval Forces he will retain his seniority for pay, rank and retirement benefits. Further reference to pay and superannuation is made later.

A medical officer who is transferred to the Permanent Naval Forces after four years' service is then promoted to the rank of lieutenant-commander and becomes eligible for the first period of twelve months' post-graduate study leave. Later, once in every six years, permanent medical officers may be granted a post-graduate course of study on full pay. The courses will be taken at approved leading hospitals, either as refresher courses or as study for specialist diplomas or higher degrees.

One of the courses may be taken in the United Kingdom.

Good opportunity is provided in the service to gain clinical experience, including a wide knowledge of industrial, marine, aviation and tropical medicines. Officers who wish to specialize in these and the usual specialties will be given every opportunity to do so.

Every facility is available for professional work, an adequate supply of medicines and instruments, as well as laboratory and X-ray equipment, being provided both ashore and afloat.

There are naval hospitals in Sydney and at Flinders Naval Depot of 150 and 200 beds respectively. The hospitals are modern and well equipped with full surgical, laboratory, X-ray and other apparatus. All naval medical officers serve part of their time in these hospitals.

Libraries of modern text-books are provided in ships and establishments for the use of medical officers.

Working hours are regular and leave is generous. The minimum home service annual leave is 28 days (four weeks), rising to a maximum of 42 days (six weeks) according to the time spent afloat. For service afloat and overseas leave is granted on return to Australia on a *pro rata* basis.

After twenty years' service six months' furlough on full pay and allowances may be granted or, on termination of service, pay in lieu. Under certain conditions proportionate payments are made for shorter periods than twenty years.

Full medical and dental attention is available to all members of the forces and includes sick leave on full pay to a generous extent.

Living conditions in the service are excellent. In shore establishments there is every opportunity for sport, and officers serving in ships pay frequent visits to interesting ports under ideal conditions.

Pay consists of active pay and allowances and is continuous over the whole period of employment, including normal leave and any period of approved sick leave.

The retirement benefit scheme which has recently been brought into effect is liberal. It applies to officers during their period of short service and makes provision for a pension in the case of invalidity or a widow and children's pension in the case of death while serving. On retirement during or at the end of the short service commission repayment of the member's contributions is made in addition to such gratuity as he may be entitled to.

Now that the Royal Australian Navy is about to man its second aircraft carrier and commission its second naval air station, added interest and opportunities for instruction in flying, should the officer so desire, and the study of aviation medicine give a wider appeal than ever before.

Rates of pay and allowances for single members "living out" are as set out in Table I.

When "living in" in one of H.M.A. ships or establishments, a single member receives the daily emoluments shown in Table I with the exception of "living out allowance" of 8s. 6d. (£155 a year).

For married members "living out allowance" of 8s. 6d. is not payable. In their case a marriage allowance of 7s. *per diem* and either a separation allowance of 4s. a day or a provision allowance of 4s. a day—total 11s. a day, £200 a year—is payable continuously in addition to active pay whether living in or living out.

When not provided with service accommodation and unable for service reasons to reside at home, married officers are entitled to receive, in addition to marriage and separation allowance, a "living out away from home allowance" in accordance with the following scale: surgeon lieutenant, 9s. *per diem*; surgeon lieutenant commander, 10s. *per diem*; surgeon commander, 10s. *per diem*; surgeon captain, 12s. 6d. *per diem*.

The Royal Australian Army Medical Corps.

(INFORMATION SUPPLIED ON REQUEST BY THE DIRECTOR-GENERAL OF MEDICAL SERVICES.)

SERVICE in the Royal Australian Army Medical Corps provides a unique opportunity for medical officers—an opportunity to serve their country and to prepare themselves and so prepare the country to face a national defence emergency; unique, because in no other similar manner can a medical man be brought into such close relationship with his fellow men in varying circumstances.

Such experience rightly understood and accepted is of inestimable value in the practice of medicine in any capacity.

The Royal Australian Army Medical Corps consists of two components, one component being a part of the Australian Regular Army (including the Regular Army Special Reserve), the other being part of the Citizen Military Forces.

Australian Regular Army (ARA).

The present establishment of medical officers of the Royal Australian Army Medical Corps is as follows: major-general, 1; colonel, 1; lieutenant-colonels, 2; majors, 9; captains, 34.

Qualifications.—An applicant for a commission in the Royal Australian Army Medical Corps (ARA) must be: (a) a legally qualified male medical practitioner registered or entitled to be registered in a State of the Commonwealth of Australia, who has completed a period of twelve months as resident medical officer in a public hospital, and (b) a British subject.

In special cases the period of residence in a hospital may be waived.

Duration of Appointment.—(a) Short service commission, ARA: One, two or four years with a right to elect to serve for a further period of one or more years. (b) Long service commission, ARA: This is a career appointment, that is, serving until reaching the prescribed age for retirement, which is normally 55 years.

Duties.—To serve as medical officers in units, camp hospitals, or in an administrative position. Medical officers may be required to serve overseas in similar positions or in a general hospital.

Pay and Allowances.—Table I gives, approximately, the annual rates of pay, including allowances. These rates are subject to cost of living adjustments.

TABLE I.

Rank.	Single, Living-in.	Single, Living-out.	Married.
	£	£	£
Captain	1,240	1,390	1,437
After two years ..	1,295	1,445	1,492
After four years ..	1,350	1,500	1,547
Major	1,432	1,582	1,628
After two years ..	1,463	1,613	1,664
After four years ..	1,504	1,655	1,700
Lieutenant-Colonel ..	1,615	1,765	1,811

Gratuity.—In addition to the above, medical officers who hold a short service commission, ARA (one, two or four years) will receive a gratuity of £125 for each completed year of service.

Retirement Benefits Fund.—(a) Medical officers of the Australian Regular Army are required to contribute to the Defence Forces Retirement Benefits Fund. This fund provides, *inter alia*, benefits in the case of death or invalidity during service. On the termination of a short service appointment contributions will be refunded. (b) Medical officers with long service commissions receive a pension on retirement, at the prescribed age, according to rank and length of service.

Annual Recreational Leave.—Three weeks' annual recreational leave on full pay each year is granted.

Refresher Training.—(a) If appointed to a short service commission within two years of graduation, a medical officer may be granted, prior to discharge, ninety days' special leave on full pay after completion of four years' service, and if he undertakes an approved full-time course of refresher training. (b) Career medical officers may be granted twelve months' leave on full pay in each six years of service.

Regular Army Special Reserve (RASR).

Medical officers may enlist specially for service in Japan and Korea for periods of duty of one year or more. Rates of pay are the same as for the Australian Regular Army, but there is no gratuity payable, nor do members of the Regular Army Special Reserve contribute to the Defence Forces Retirement Benefits Fund.

First Appointment.—The first appointment to the Australian Regular Army or the Regular Army Special Reserve is in the rank of captain. Further information may be obtained from the Deputy Director, Medical Services (DDMS) at the command headquarters in each State (see below).

Citizen Military Forces (CMF).

The Citizen Military Forces are divided into active forces and reserve forces. The former includes Royal Australian Army Medical Corps officers on the active list; the latter, Royal Australian Army Medical Corps officers on the reserve of officers list.

Active (Citizen Military Forces).

Medical officers in the active list may be posted or attached for duty to the following units: field ambulances, field dressing stations, casualty clearing stations, and general hospitals, as regimental medical officers to units, administrative officers or as specialist officers (including hygiene) to formations *et cetera*.

The first appointment to commissioned rank in the Royal Australian Army Medical Corps (Citizen Military Forces) for a medical officer is captain (provisional).

Officers on the active list must attend camps of continuous training of fourteen days' duration each year and also prescribed twelve days' home training parades. Home training is conducted in evening parades, equivalent to one-third of a day, and occasional week-end bivouacs.

The rates of pay per day are as shown in Table II.

TABLE II.

Rank.	Home Training.	Camp. (Single.)	Camp (Married) Additional.
	£ s. d.	£ s. d.	
Captain	3 7 0	3 7 0	Marriage allowance (four days camp and over), 7s. per day and separation allowance; (more than 10 days camp), 4s. per day (out-of-pocket expenses up to 58 days per year, 1s. 6d. per day).
Major	3 17 6	3 17 6	
Lieutenant-Colonel	4 7 6	4 7 6	
Colonel	5 3 6	5 3 6	

In addition, for camps of continuous training there is a *locum tenens* allowance of £3 3s. per day.

Pay can be received up to a maximum of 38 days per year plus attendance at schools, courses *et cetera* up to a maximum of twenty days.

Reserve of Officers, Royal Australian Army Medical Corps (R of O).

Any person qualified under Australian Military Regulations who is competent to perform the duties of a medical officer in the Royal Australian Army Medical Corps may be appointed an officer of the Reserve of Officers, Royal Australian Army Medical Corps. First appointment, normally, is in the rank of honorary captain.

Officers of the Reserve of Officers, Royal Australian Army Medical Corps, perform no army duties in time of peace, but are eligible for some of the duties of officers on the active list when none of the latter is available.

An efficient army medical service can most readily be assured if, rather than entering the service as a career, young medical graduates were to serve with a short service commission in the Regular Army Medical Corps and at the completion of their service were to enter civilian practice.

Following the short period with the Regular Army these medical officers could continue their training and receive promotion by part-time service in the Citizen Military Forces. In the event of a national emergency they could again enter the expanding Regular Army in some senior posting.

The Royal Australian Air Force Medical Service.

(INFORMATION SUPPLIED ON REQUEST BY THE DIRECTOR-GENERAL OF MEDICAL SERVICES.)

THE medical service of the Permanent Force, Royal Australian Air Force, provides establishments for over fifty medical officers, including posts for the following personnel.

1. Director-General of Medical Services and staff officers, Medical Directorate, Air Force Headquarters, Melbourne.
2. Principal medical officers, Southern, Eastern, Western and North Eastern (North Queensland) Areas.
3. Commanding officers, Royal Australian Air Force hospitals, Richmond (New South Wales) and Laverton (Victoria).
4. Senior medical officers and medical officers at stations, units and squadrons in all States of the Commonwealth and the Northern Territory, and Canberra, Australian Capital Territory.

5. Overseas postings to squadrons in Korea, Japan, Malaya, Malta, and Cocos and Manus Islands.

6. Provision made for exchange postings to the United Kingdom with medical officers of the Royal Air Force.

Duties.—Duties involve medical duties at service hospitals or Royal Australian Air Force stations within Australia and/or overseas, and include active clinical work. Successful candidates will also be required to study and practise aviation medicine associated with the care of flying personnel. The station sick quarters in the Royal Australian Air Force are well equipped and provision is made for a staff of dental officers, nursing sisters, pharmacists, X-ray and laboratory technicians and trained medical orderlies.

Hospital experience and facilities for post-graduate work exist in Royal Australian Air Force hospitals in New South Wales and Victoria. Senior consultants and specialists visit those hospitals regularly and post-graduate experience can be obtained under them and studies continued for high degrees and diplomas.

Subject to service exigencies, medical officers may be given opportunities to attend clinics at teaching hospitals, or courses of lectures at universities *et cetera*, and to undertake flying training courses.

Duration of Appointment.—Entry is by short service commission. The duration of a short service commission is normally four years, with extension of three years and promotion to squadron leader, but medical officers may resign after having completed one year's service. This last condition has attracted several recent graduates to the service, who, having been unable to obtain hospital appointments, wish to acquire equivalent experience at service hospitals. An officer serving on an extended short service appointment is eligible for appointment to a permanent commission.

TABLE I.

Rank.	Single Officer.		Married Officer. Living In or Out.
	Living In.	Living Out.	
	£	£	£
Flight Lieutenant—			
On appointment ..	1,254	1,409	1,455
After two years ..	1,300	1,463	1,510
After four years ..	1,364	1,518	1,565
Squadron Leader—			
On appointment ..	1,446	1,600	1,647

Rank on Appointment.—Rank on appointment normally is that of flight lieutenant, but higher rank may be granted to those applicants who have either held higher rank formerly in any of Her Majesty's forces or whose qualifications, experience, age and other attributes for service in the Royal Australian Air Force warrant consideration in this matter.

Gratuity and Pension.—A gratuity at the rate of £125 *per annum* is provided for short service commission officers and medical officers are required to contribute to a pension scheme which provides retiring allowance for permanent commission personnel and also covers invalidity or death during service for both short service and permanent commission.

Post-Graduate Training.—Wherever practicable, facilities will be given to a medical officer to gain further professional knowledge and experience by attendance at a civil hospital or medical school on one working day every week and he may be allowed to accept an honorary appointment on the staff of such civil hospital.

Medical officers appointed to permanent commissions may be granted up to twelve months' study leave on full pay during every six years of service. The purpose of this leave is to enable them to pursue special medical training, including study for post-graduate diplomas.

After four years' continuous service a medical officer appointed to a short service commission within two years of the date of his graduation may be granted ninety days' special leave on full pay if he undertakes an approved full-time course in refresher training.

Retiring Ages.—The retiring ages are as follows: flight lieutenant, squadron leader, 49 years; wing commander, 52 years; group captain, 55 years; air commodore, air vice-marshal, 58 years.

Citizen Air Force, Active Reserve and General Reserve Medical Officers.—Many medical practitioners in all States of the Commonwealth are enrolled in the Citizen Air Force, Active and General Reserves, and a considerable proportion of them are voluntarily rendering part-time service to the Royal Australian Air Force in one form or another—for

example, medical consultants and specialists, medical administration, medical examinations at recruiting centres in capital cities or on Royal Australian Air Force stations, medical duties with squadrons and stations throughout the Commonwealth, including relieving for Permanent Air Force medical officers.

There are also vacancies on the General Reserve for medical practitioners who wish to apply, and service is entirely of a voluntary nature in peace-time.

Rates of Pay and Allowances (as at May 1, 1952), subject to cost of living adjustment quarterly, are as set out in Table I.

The Repatriation Department.

(INFORMATION SUPPLIED ON REQUEST BY THE CHAIRMAN OF THE REPATRIATION COMMISSION.)

For the purposes of the *Repatriation Act, 1920-1951*, there is a Repatriation Commission which is, subject to the control of the Minister, charged with the general administration of this Act.

The activities of the Repatriation Commission are many and varied, including, in addition to the payment of pension and the provision of medical treatment, reestablishment training, loans and allowances, the soldiers' children education scheme, the granting of various allowances—for example, recreation transport allowance, sustenance allowance *et cetera*, furniture grants, tools of trade and other benefits.

The Commission is empowered by the Regulations under the Act to grant medical treatment under certain conditions to ex-service personnel and to certain dependants of deceased members of the forces where death was due to war service. These pension and treatment functions now constitute the greater part of the Commission's activities. Of a total expenditure during the year 1950-1951 of some £38,000,000, pension payments were responsible for £29,000,000 and those relating to medical treatment for £6,500,000. These payments include dependants' pensions and maintenance of institutions, sustenance allowance, fares and other expenses incidental to the provision of treatment. Again including dependants, there were, at June 30, 1951, 502,627 pensions in force, 24,722 being new grants during the year. These figures serve to indicate in part the great responsibilities of the Repatriation Commission. It may also be of interest that, during the year 1950-1951, 23,800 in-patients were investigated or treated and there were 412,000 out-patient attendances by 26,500 patients; the average daily number of in-patients was 5,500 throughout the Commonwealth.

There are approximately one million remaining members, men and women who served in the 1914 war, the 1939 war and the Korean and Malayan operations, all potential responsibilities of the Commission.

Many buildings and large staffs—3000 employed on administrative work and 6000 at institutions and artificial limb factories—are necessary; there are 270 full-time positions, permanent or temporary, for medical officers, and more than 200 part-time visiting specialists. There are also 2800 local medical officers throughout the Commonwealth, private practitioners, who undertake to treat eligible patients on behalf of the Commission on a fee-for-service basis.

Members of the staff are employed under the *Public Service Act*, which is Commonwealth legislation, and in the Repatriation Department the Chairman of the Repatriation Commission is the permanent head. In each State there is a repatriation board, a statutory body under the *Repatriation Act*, charged with such duties as determining whether the incapacity from which a "member of the Forces" has died in fact resulted from an occurrence that happened during his war service, from his employment in connexion with naval or military preparations or operations, arose out of or was attributable to his war service or had been contributed to in any material degree or had been aggravated by the conditions of war service. Against an adverse decision by the board on attributability the member has the right of appeal to the Repatriation Commission and, if that appeal is unsuccessful, to the War Pensions Entitlement Appeal Tribunal. If dissatisfied with the rate of pension granted, the member may appeal to the Assessment Appeal Tribunal.

An Entitlement Appeal Tribunal consists of a chairman, who is a barrister or solicitor, and two members; while an assessment appeal tribunal is comprised of a chairman, who is a barrister or solicitor, and two medical members selected from panels approved by the Minister for Repatriation.

In each State there is a Deputy Commissioner of Repatriation, who is the authority for granting medical treatment.

Medical officers of the Department are advisers to the Commission on relationship of incapacity to war service and pension assessments, and are responsible for all matters relating to investigation and treatment of disabilities.

At the headquarters of the Repatriation Commission there are a principal medical officer, a deputy principal medical officer, a grade II medical officer, a grade I medical officer, a consultant (chest diseases), and a consultant (psychological medicine). The principal medical officer is responsible to the permanent head for the efficiency of the medical services, and is the adviser to him on policy appointments and promotions of professional staffs, and on medical matters generally applicable to pensions and treatment. As the name signifies, the deputy principal medical officer acts for the principal medical officer in his absence and assists him, also advises the Commission regarding non-professional staff appointments, various special grants, equipment, and so forth. The duties of these two officers are manifold and need not be enumerated in detail.

The grade II medical officer attends to the medical aspects of all overseas pensioners, including their treatment and any new claims, gives his opinion on new evidence submitted in appeals to the entitlement appeal tribunals and on appeals to the Commission by 1914 war members, and advises on attributability and the like.

The grade I medical officer deals with appeals to the Commission against decisions by the State repatriation boards and conducts medical examinations of members of the staff.

Both these officers must possess a very sound knowledge of aetiology and diagnosis.

Both consultants organize and supervise their specialty services throughout the Commonwealth. They are, of necessity, recognized specialists in their own spheres.

Attached to the Victorian office are a senior radiologist and a senior pathologist, who supervise their specialties in all States and advise the Commission concerning them, in addition to working at the Victorian hospitals.

There is a senior medical officer in each State; he is the medical adviser to the deputy commissioner and is responsible to him for the efficiency of the medical service in his State. In the larger States there is an assistant senior medical officer, and in all States there are branch office medical officers, some of whom are employed on administrative work, some dealing with new claims to entitlement, and some conducting medical examinations for the review of pension assessments.

New South Wales and Victoria each has two Repatriation General Hospitals, while there is one in each other capital city.

The main hospital in New South Wales is situated at Concord; its average in-patient strength is more than 1400 and it is in the charge of a medical superintendent, who is supported by an assistant medical superintendent. The medical staff is made up of full-time specialists in anaesthetics, psychiatry, radiology and pathology, part-time visiting specialists in all branches of medicine, and "resident" medical officers. The term "resident" is really a misnomer; quarters are provided for those medical officers who desire to reside at the hospital and for those medical officers who normally live out but who are on duty overnight or at week-ends. This applies in all States.

The Repatriation General Hospital, Concord, is at present a teaching hospital for undergraduate and post-graduate students, but the former teaching is to cease in the near future. It is also a training hospital for nurses and for ancillary services, of which there is a full complement.

A second general hospital is at Randwick; at present it accommodates up to 200 patients.

In the same building as the New South Wales Branch Office, The Grace Building, is the out-patient clinic, which is staffed medically by a medical officer-in-charge, full-time specialists in psychiatry, radiology and pathology, and medical officers, and contains ancillary services.

The New South Wales Sanatorium at Turramurra is the responsibility of a medical superintendent, who has the assistance of "resident" medical officers and the advice of visiting specialists and the full-time specialist in chest diseases. It accommodates approximately 250 patients.

The Victorian institutions are smaller than those in New South Wales, the Repatriation General Hospital, Heidelberg, accommodating some 1050 patients, the Repatriation General Hospital, Caulfield, 170, and the sanatorium at Macleod, 120. Each is controlled by a medical superintendent, with an assistant medical superintendent at the first named. Staffing is on the same lines as in New South Wales, as it is, with differences due to the size of the institutions, in all States. There is a sanatorium in each State, excepting Tasmania.

Qualifications necessary for general medical staff have already been mentioned. For specialist staff it is essential for the officer to possess a higher academic qualification and to have had at least three years' experience in the practice of the specialty, or to have had experience of such a length and nature as the Public Service Board considers suitable.

Repatriation medical services are excellent training grounds for young medical practitioners, providing, as they do, clinical material of every description, excepting in diseases of women and children—there are female patients, but they are not of the nature to be regarded as suitable for study of obstetrics and gynaecology. Attendance at post-graduate lectures is facilitated by the medical superintendent so arranging the duty rosters that the officers may attend in their own time. During the five years since the Repatriation Commission took over the hospitals at Concord and Heidelberg, many medical officers have gained higher degrees and diplomas, including M.S., F.R.A.C.S., M.D., M.R.A.C.P., and diplomas in psychological medicine, anaesthetics, radiology, dermatology and clinical pathology. Some of these officers remain in the service; the general public benefits from the repatriation training of those who leave. Of those remaining, some have been promoted to specialist positions and it is hoped that others will be equally successful.

Medical officers also have the opportunity to attend conferences and clinical meetings held at the hospitals.

The full-time medical officers formed "The Repatriation Medical Officers' Association", and the Public Service Arbitrator, on the Association's approach, determined the salaries of all those employed full-time. Annual increments are payable, subject to satisfactory service—£62 or £63—according to the arbitrator's determination, which also provides for weekly working hours of 36½, to be worked on 5½ days per week, between 8 a.m. and 6 p.m., with compensatory time off for night duty or hours worked outside the normal hours, three weeks' annual recreation leave for temporary employees (this is the same as for permanent officers), sick leave as for permanent officers, and leave without pay for study purposes.

The salaries hereunder are subject to cost of living adjustments, the present addition being £174:

Principal Medical Officer	£2,606-£2,906
Deputy Principal Medical Officer	£2,420-£2,606
Senior Medical Officer, New South Wales and Victoria	£2,294-£2,482
Senior Medical Officer, Queensland	£2,048-£2,236
Senior Medical Officer, Western Australia and South Australia	£1,924-£2,110
Senior Medical Officer, Tasmania	£1,800-£1,986
Consultants at Headquarters	£2,172-£2,358
Headquarters Medical Officer, Grade II	£1,800-£1,986
Headquarters Medical Officer, Grade I	£1,532-£1,738
Assistant Senior Medical Officer, New South Wales and Victoria	£1,924-£2,110
Assistant Senior Medical Officer, Queensland and Western Australia	£1,800-£1,986
Medical Superintendent, Concord and Heidelberg	£2,172-£2,358
Medical Superintendent, Queensland, Western Australia and South Australia	£1,800-£1,986
Medical Superintendent, Tasmania	£1,614-£1,800
Medical Superintendent, Randwick and Caulfield	£1,614-£1,800
Medical Superintendent, Sanatorium, New South Wales and Victoria	£1,676-£1,862
Specialist Medical Officers	£1,738-£1,924
Senior Radiologist and Senior Pathologist	£1,924-£2,110
Assistant Medical Superintendent, New South Wales and Victoria	£1,800-£1,986
Assistant Medical Superintendent, Queensland, Western Australia and South Australia	£1,676-£1,862
Medical Officer-in-Charge, Out-patient Clinic, New South Wales and Victoria	£1,552-£1,738
Medical Officer-in-Charge, Out-patient Clinic, Queensland, Western Australia and South Australia	£1,124-£1,676
Branch Office Medical Officer and Senior Resident Medical Officer	£1,124-£1,676
Resident Medical Officer	£1,124-£1,614

Contributions to the Commonwealth Superannuation Fund or the Provident Fund are deducted from salaries fortnightly. All classified officers must contribute to one or the other fund. The Superannuation Fund provides for a pension to the member on retirement, whether this is due to physical or mental unfitness, or to reaching the retiring age. A contributor to the Provident Fund, restricted to officers who, for sundry reasons, do not contribute to the Superannuation Fund, receives a lump sum comprised of his contributions and

a Government addition. Under certain conditions temporary employees may become contributors.

Long-service furlough on full pay is granted after twenty years' service; six months for twenty years and *pro rata* thereafter.

Visiting specialists are paid on a sessional basis, commencing with £4 4s. for a session up to two and a quarter hours, increasing by 10s. 6d. for each half-hour in excess, and allowances are paid varying with the distance of the institution from the city. Consultants receive a slightly higher rate.

It is hoped that further avenues of promotion intermediate between "resident" medical officer and principal medical officer will open out in the future.

Medical Registration.

THE following are the provisions for medical registration in the Australian Capital Territory and in the several States of the Commonwealth.

AUSTRALIAN CAPITAL TERRITORY.

Medical registration in the Australian Capital Territory is effected under the provisions of the *Medical Practitioners' Registration Ordinance, 1930*, as follows:

Any person who—

- (a) is of good fame and character;
- (b) is the holder of a degree in medicine or surgery of any University in the Commonwealth or the Dominion of New Zealand, which is legally authorized to grant such degree; or
- (c) is registered or possesses a qualification entitling him to be registered under the Medical Acts of the Parliament of the United Kingdom or any Act amending or substituted for those Acts or any of them,

shall be entitled to apply to the Board for registration as a medical practitioner.

A person who has applied to be registered is entitled to be registered if he has proved to the satisfaction of the Board—

- (a) that he was registered at the commencement of this Ordinance under the law in force in any State or Territory of the Commonwealth; or
- (b) that he is entitled to apply for registration by virtue of compliance with the requirements specified in the last preceding section; and
- (c) that the testimonial, diploma, licence or certificate testifying to his qualification was, after examination, duly obtained by him from a university, college, or other body recognized in the country to which such university, college, or other body belongs; and in the period during which he has held the certificate he has not been removed from the register of any country for any cause which disqualifies him from being registered under this Ordinance; and has not been removed from the register of persons entitled to practise medicine in the United Kingdom in pursuance of the Medical Acts of the Parliament of the United Kingdom or any Act amending or substituted for those Acts or any of them; and
- (d) that he has passed through a regular course of medical and surgical study of not less than five years' duration.

QUEENSLAND.

Medical registration in Queensland is effected under provisions of *The Medical Act, 1939-1940*. The following are the qualifications for registration.

19. (1) Subject to this Act, every person shall be entitled to be registered as a medical practitioner under this Act who makes application to the Board in the prescribed form and pays the prescribed registration fee, and who proves to the satisfaction of the Board that he has attained the age of twenty-one years and is of good fame and character, and that—

- (a) He is the holder of a degree (obtained after due examination) in medicine or surgery of any university in the Commonwealth of Australia or the Dominion of New Zealand, which is legally authorized to grant such degree; or
- (b) He is registered or possesses a qualification entitling him to be registered under the Medical Acts of the Parliament of Great Britain and Northern Ireland or any Act amending or substituted for those Acts or any of them—

and who further proves to the satisfaction of the Board that, subsequent to obtaining such qualification so relied upon by him—

- (c) He has served for a period or periods amounting in the aggregate to twelve months as a resident medical officer and has obtained the prescribed experience in medicine, surgery, and obstetrics, in one or more of the hospitals hereinafter specified, namely, any hospital to which "*The Hospitals Act of 1936*" applies, or any hospital in Queensland approved by the Governor in Council or, in the case of a hospital outside Queensland, a hospital specifically approved by the Governor in Council; and in any event produces a certificate or certificates as prescribed showing that such service or services was or were performed and completed to the satisfaction of the competent authority or authorities controlling the hospital or hospitals concerned; or
- (d) He is duly entitled to practise and practised as a medical practitioner for at least three years in a State or country outside Queensland.

NEW SOUTH WALES.

Registration of medical practitioners in New South Wales is carried out under the provisions of the *Medical Practitioners Act, 1938-1950*. The following are the qualifications for registration.

(1) Qualifications for Registration:

- (a) The holder of a degree (granted after due examination) in medicine or surgery of any University in the Commonwealth of Australia or the Dominion of New Zealand which is legally authorized to grant such degree.
- (b) A person who has passed through a regular graded course of medical study of five or more years' duration in a school of medicine in some part of the British Empire, such course being recognized by the Board as not lower in standard than that required by the by-laws of the University of Sydney for the degree of Bachelor of Medicine and who—
 - (i) has received a duly recognized degree or diploma, and
 - (ii) is by law entitled to be registered or to practise as a medical practitioner in such part of the British Empire.

Provided that graduates in Medicine of the University of Sydney are entitled to be registered and to practise in such other part of the British Empire, by virtue of their being such graduates and without further examination.

In the absence of such reciprocity, the holder of the British Empire degree is required to attend the courses and complete the Fourth, Fifth and Final Degree Examinations in the Faculty of Medicine at the University of Sydney, in order to become eligible for registration.

- (c) A person who has passed through a regular graded course of medical study of five or more years' duration in a school of medicine in some country not being part of the British Empire and who—
 - (i) has received a duly recognized degree or diploma, and
 - (ii) is or was by law entitled to be registered or to practise as a medical practitioner in such country, and
 - (iii) in addition thereto has passed the Fourth, Fifth and Final Degree Examinations prescribed by the Senate of the University of Sydney for students in the Faculty of Medicine, after attending the courses of instruction prescribed by and otherwise complying with the by-laws of the University.
- (d) A person who has passed through a regular graded course of medical study of five or more years' duration in a school of medicine in some part of the British Empire or some other country and—
 - (i) has received a duly recognized degree or diploma, and
 - (ii) has held a certificate of registration for Post Graduate Teaching or for Research Work in medicine or surgery, under Section 21 of the Act, for a continuous period of three years or more.

Section 21 provides that the Board may, at the request of any institution or organization interested in post-graduate teaching in medicine or surgery, grant to any person a certificate of registration for post-graduate teaching or for research work in medicine or surgery.

No certificate issued under this section shall have effect for a longer period than one year, but any such certificate may be renewed by the Board from time to time for a like period.

(2) **Special Qualifications:**

Section 17 (2) of the Act provides that in addition to the classes of persons referred to in (1) above, a qualified person may be registered if the Medical Board reports to the Minister for Health that such person has such special qualifications and has had such special experience in the practice of medicine or surgery, or of any branch of medicine or surgery, as would justify waiving compliance with the usual requirements in regard to registration in his case and the Minister approves of the Board's recommendation.

(3) **Conditions of Reciprocity:**

(a) Reciprocity of registration exists between New South Wales and other States of the Commonwealth of Australia and the Dominion of New Zealand.

(b) Reciprocity of registration also exists, at the present time, between New South Wales and the following: Great Britain and Northern Ireland, Irish Free State, Union of South Africa, Ceylon, Hong-Kong, Singapore, Province of Manitoba in Canada, Province of Bombay in India.

Such reciprocity is in respect of degrees granted in those parts of the British Empire and does not extend to registration afforded therein to persons who do not hold such degrees.

The Board cannot establish reciprocity with any country not forming part of the British Empire. Persons with degrees obtained elsewhere than within reciprocating parts of the British Empire must seek registration as provided in (1) (c), (1) (d), or (2) above.

VICTORIA.

Registration of medical practitioners in Victoria is effected under provisions of the *Medical Act, 1929*. The provisions of the Act require that applicants for registration must prove to the satisfaction of the Medical Board of Victoria that they have completed a regular course of medical and surgical study of at least five years' duration in Australia or in a country or State having a reciprocal registration agreement with the Medical Board of Victoria. Reciprocity in August, 1951, existed between Victoria and the United Kingdom, Eire, New Zealand and Pakistan.

SOUTH AUSTRALIA.

Medical registration in South Australia is effected under the provisions of the *Medical Practitioners Act, 1919-1935*. Any person is entitled to be registered who proves to the satisfaction of the Board that he

(a) is the holder of a degree in medicine or surgery of any university in the Commonwealth of Australia or the Dominion of New Zealand which is legally authorized to grant such degree; or

(b) is registered, or possesses a qualification entitling him to be registered, under the medical Acts of the Parliament of the United Kingdom, or any Act amending or substituted for those Acts, or any of them; or

(c) has passed through a regular graded course of medical study in a school of medicine in some part of the British Empire or some other country, such course being of not less than five years' duration, and being recognized by the board as not lower in standard than that required in the State, and—

- i. has received, after due examination, from a university, college, or other body, duly recognized for the purpose in such part or country, a degree or diploma, certifying to his ability to practise medicine or surgery, and
- ii. is by law entitled to be registered, or to practise, as a medical practitioner in such part or country.

(2) Notwithstanding anything in this Act, the board, in considering an application to be registered, shall not be required to recognize any degree, diploma, or other qualification granted in any country, not being part of the British Empire, unless in such country a person registered under this Act is granted rights and advantages equal to those granted in such country to the holders of such degree, diploma, or qualification.

WESTERN AUSTRALIA.

Registration of medical practitioners in Western Australia is effected under the provisions of the *Medical Act, 1922-1945*.

An applicant for registration must prove to the satisfaction of the Board that—

(a) he possesses a recognized degree in medicine and surgery from any University in Great Britain, Northern Ireland, Australia or New Zealand and which University is legally authorized to grant such degree, or

(b) he has completed at a recognized University in any other country a regular course of medical study of not less than 5 years' duration and received a recognized diploma (which is not inferior, in the opinion of the Board, to the diploma issued by the University of Sydney, Melbourne, Brisbane or Adelaide), providing medical practitioners duly qualified as such in Australia are permitted to practise in such other country, without further examination, and

(c) he is a person of good fame and character, and

(d) he is not debarred from practising in the country in which he received his degree or diploma;

(e) further, the applicant must pay to this Board an annual practising fee of £3 3s., the first such amount being deemed to include the fee for registration, and

(f) complete the prescribed form of application, and

(g) be identified to the satisfaction of the Board as being the person named in the diplomas by virtue of which he claims to be registered.

Reciprocity.—The only conditions of reciprocity are that a practitioner (duly qualified *et cetera*) from any country can practise here provided any Australia-qualified doctor can practise without further examination in the country from whence came the applicant.

TASMANIA.

Medical registration in Tasmania is controlled by the *Medical Act, 1918*. The relevant clause in the Act is as follows:

(1) Every person who is a British subject and who is the holder of any one or more of the qualifications described in the second schedule and who proves on personal attendance, if required by the Council, to the satisfaction of the Council, that the testimonium, diploma, licence, or certificate testifying to such qualification was obtained by him after a complete course of training and examination in the country where same was issued, at a university, college, or other institution recognized for that purpose in that country, or who possesses such other qualification as may be prescribed, shall be entitled to registration as a legally-qualified medical practitioner, and shall receive from the Council a certificate of qualification.

An amendment to the *Medical Act, 1918*, was adopted in May, 1951. The amendment is known as the *Medical Act, 1951*. The amendment dealt with the issuing of special licences and is as follows:

15A—(1) Any person who—

I. Has passed through a regular graded course of medical study lasting at least five years in some school of medicine:

II. Has received, after examination, from that school of medicine or from a university, college, or other institution of which that school of medicine is part or with which it is connected, a degree, diploma, licence, or fellowship equivalent to one of the qualifications set out in paragraphs 1 to 10 of the second schedule, which degree, diploma, licence, or fellowship that school, university, college, or other institution was then empowered to grant by the law of the place where it then was, and which was then in that law evidence of ability to practise medicine or surgery or both: and

III. Is or was by the law of that or some other place entitled to be registered or to practise as a medical practitioner—

may on the Minister's recommendation apply to the Council to approve his further training under this section.

(2) On receipt of any such application the Council, on being satisfied that the applicant has the qualifications he claims, may give its approval to the applicant's undergoing further training.

(3) Such further training shall be for a period not less than twelve months approved by the Council—

I. Under articles of apprenticeship in a form approved by the Council to the superintendent of, or some other medical practitioner employed on full time duty in, a hospital in this State approved by the Council: or

II. As an employee of the governors or board of management of a hospital in this State approved

by the Council employed to assist the superintendent of, or some other such medical practitioner, in that hospital.

(4) The Council may approve or direct—

- I. Any variation, discharge, or transfer of articles: or
- II. Any change of hospital or employment—for the purposes of this section.

(5) When any such applicant has completed his further training as provided by this section, and has been certified by the medical practitioner to whom he was apprenticed or assistant to be competent in the duties assigned to him (to which opinion or its contrary he shall be bound to certify when asked by the applicant), he may apply to the Council for a special licence under subsection (7) of this section.

(6) The Council may, if it thinks fit, in any case or class of cases, dispense with the requirements of subsection (5) of this section with respect to the certificate therein mentioned.

(7) A special licence shall entitle the licentiate—

- I. To practise, subject to subsection (8) of this section, in any branch or branches of medicine or surgery or both, according as is specified in the licence, as if he were registered under this Act: and

- II. To call himself Tasmanian Licentiate in Medicine or in Surgery or in Medicine and Surgery, as the case may be.

(8) The right to practise conferred by a special licence shall be limited during the first five years that the licentiate holds such a licence to such cities, counties, municipalities, towns, and islands as the Minister from time to time by notice in the *Gazette* appoints for the holder of the licence.

(9) Subject to subsection (10) of this section, if the Council, after such examination and inquiry as it thinks proper, is of opinion that the applicant has sufficient experience in the practice of medicine and surgery for the purpose of the licence it proposes to grant, it may grant to the applicant under its common seal a special licence having effect for one year, renewable likewise year after year with such variations in respect of art as the Council thinks fit; but shall grant not more than five original special licences in each of the years 1952 and 1953, and thereafter shall grant no more such licences.

(10) If practicable, every examination for the purposes of subsection (9) of this section shall be conducted by such persons, being persons who are examiners in the medical school of some Australian university, as the Council may determine.

(11) No special licence to practise medicine and surgery generally shall be granted except upon the licentiate's passing an examination under subsection (9) equivalent to the final examinations for the bachelor's degrees in medicine and surgery in some Australian university selected by the Council.

(12) The holder of a special licence shall, during the currency of his licence, be deemed for all purposes to be registered under this Act, but shall not practise outside the terms of his licence, as and if limited under subsection (8) of this section, except in an emergency, upon pain, in the Council's discretion, of forfeiting his licence.

(13) Section sixteen shall, with all necessary changes, apply to holders of special licences, cancellation of the licence being deemed to be equivalent to removal from the register, and professional incompetence being an additional ground for cancellation.

(14) The holder of a special licence under this section shall be entitled to its renewal until it is lawfully forfeited or cancelled.

(15) If the holder of a special licence under this section becomes registered under this Act, his licence as then held shall endure without formal renewal so long as he remains so registered.

Post-Graduate Work.

THE MELBOURNE PERMANENT POST-GRADUATE COMMITTEE.

Lectures in Thoracic Surgery.

The Melbourne Permanent Post-Graduate Committee has pleasure in announcing that arrangements have been made for two lectures to be given by Mr. W. P. Cleland, M.R.C.P.,

F.R.C.S. Mr. Cleland is a thoracic surgeon on the staff of the Brompton Hospital, London. The lectures will be given in the Medical Society Hall, 426 Albert Street, East Melbourne, at 8.15 p.m., on Wednesday, November 26, on the subject "Carcinoma of the Bronchus", and on Friday, November 28, on the subject "Surgical Aspects of Mitral Stenosis".

In order to facilitate arrangements, those desirous of attending are particularly requested to send their application beforehand, together with cheque, to the Secretary, 394 Albert Street, East Melbourne. The fee will be 10s. 6d. per lecture.

Diary for the Month.

- Nov. 17.—Victorian Branch, B.M.A.: Finance Subcommittee.
- Nov. 18.—New South Wales Branch, B.M.A.: Medical Politics Committee.
- Nov. 19.—Western Australian Branch, B.M.A.: General Meeting.
- Nov. 20.—Victorian Branch, B.M.A.: Executive Committee.
- Nov. 20.—New South Wales Branch, B.M.A.: Clinical Meeting.
- Nov. 25.—New South Wales Branch, B.M.A.: Ethics Committee.
- Nov. 26.—Victorian Branch, B.M.A.: Council Meeting.
- Nov. 27.—New South Wales Branch, B.M.A.: Branch Meeting.
- Nov. 27.—South Australian Branch, B.M.A.: Scientific Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federal Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178 North Terrace, Adelaide): All Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

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